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AFRICA to the Amazon — so by chance this issue runs. There is more than a hint here of Equatorial regions. It has been rather cold for an unusually long spell in the San Francisco Bay Area as we go to press, which if you want to make something of it suggests that "chance" might have got a subconscious push toward balmy winter reading. Speaking of Africa, our interest is natural because in a sense the Academy is indebted to that continent for providing our grandest displays of nature — referring to African Hall of course. If you accept our editorial invitation to some African reading, you will not find it all grim and foreboding. Every one of the books mentioned is full of human problems, yes, but also of the sense that nature is still the freeholder there. What comes again and again to mind as you read is the fervent hope that man may yet learn, in a continent he has still not overrun, to enter into partnership with nature rather than destroy her altogether. One book describes the groundnut fiasco. Nature was not consulted! She could have told man his scheme wouldn't work, in spite of (or because of?) the hordes of earth-tearing machines he let loose on her.

Speaking of the tropics — the Amazon looms big in this — we have good authority for the idea that man lives most successfully there by adapting to rather than trampling over nature. It being decidedly untropical where we sit at this writing, and reach for ideas, it is proper we should light on a book entitled *Where Winter Never Comes*, by one of our favorite naturalist authors, Marston Bates (New York: Charles Scribner's Sons, 1952). Like another favorite naturalist of ours, William Beebe, Dr. Bates functions best where it is warm and sunny. In this philosophical guide to the tropics, the author of *The Nature of Natural History* does a reverse Ellsworth Huntington and learnedly documents his liking of warm climates. He is our man! and let Professor Huntington's shade shiver in New Haven, Connecticut. Thumbing back through that stimulating book for something that fits our present thoughts, we come up with this — he has just spoken of the West's economic dependence on tropical products: "But the present perilous state of relationship among the people of the planetary neighborhood shows that this Western contact with the tropics cannot be maintained on an exploitative basis: that the tropical peoples cannot be kept tributary in either an economic or a political sense, which means that the West must modify its traditional methods of action." This applies nicely to most of Africa. (Dr. Bates' book is briefly reviewed in this issue.)

IT IS A PLEASURE to welcome Dr. Lloyd Glenn Ingles, who heads Life Sciences at Fresno State College, to PD again just now, because we can congratulate him at the same time on the completely new edition of his California mammal book. The new title is *Mammals of California and its Coastal Waters*; it is published by Stanford and is reviewed in this issue. . . . ¶ John L. Blackford hastened to write us from Libby, Montana, after our September-October 1954 mention, that he hasn't been in the insurance business for some years (we had been misled by his name on an old calendar back used for packing with the reptile photos). . . . ¶ Living in Sierra Madre, Marvin Weese has to cross Los Angeles to get to Mount San Jacinto, but after reading his story you'll agree it's worth even that effort. . . . ¶ Ernest Maxwell, journalist in Idyllwild, California, is one of the 600 who live there, part way up San Jacinto, the year round because they like it. . . . ¶ While he writes from his Painted Canyon Ranch close to Arizona's Chiricahua National Monument, Weldon F. Heald is Californian enough to take an active interest in California's state parks — a good example to us who can enjoy them more often. . . . ¶ When Dr. Edward S. Ross, Academy curator of entomology, is away on a collecting trip, he is too busy giving the insects a bad time to write letters, so his Amazon report is doubly appreciated. D.G.K.

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WESTERN GRAY SQUIRREL on Mount San Jacinto — Val Samuelson's photo.

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TO VIEW AFRICA one must get there," Julian Huxley said in his *Africa View*.^{*} Since few of us are likely to put this truth to the only conclusive test, it's a good thing there are Huxleys to show us in their books why, now even more than a quarter century ago, we need a clear view of the continent once called dark. A new darkness hangs over Africa.

Africa View can be reread now with fresh interest. Huxley's scientific caliber and competence with words gave his work the "forward look." His closing prophecy that the British Empire would in time be "centred in Africa" has already come true; and here is a sentence to keep before us as we read the current crop of Africa reports: "The Kikuyus are one of the most important tribes in Kenya, and are at the moment in the forefront of the 'Native Problem' of the Colony." The seeds of Mau Mau were sprouting in 1929 — only the name was lacking.

In the last days of 1954 the deepening intrenchment of the Nationalists in the Union of South Africa, as Strydom succeeded Malan, prompted a foreboding lead editorial in the *San Francisco Chronicle*. Many of us heard CBS's foreign news chief, Howard K. Smith — one of our clearest-eyed newsmen — say from Johannesburg in closing his recent series of African broadcasts, that the dictators of policy in the Union today are like men standing on the track in a state of paralysis while an express rushes towards them. Others have called Africa a volcano about to blow. When it does, the world cannot say in honesty it did not know what caused the explosion. It can only admit that the collective will to draw the cataclysmic fires was mustered and set marching too late. We who can but watch will at least know what hit us, if we use eyes and ears now. If enough of us see smoke and hear the crackling, now, our awareness can lead the world, even yet, to timely action. First we should learn the nature of the African volcano.

By now most reference libraries should have the comprehensive, new, and not the least difficult textbook, *Africa: A Study in Tropical Development*, by Professor L. Dudley Stamp whose critical *Land for Tomorrow* was recently looked at here. For "Unrolling the Map of Africa" (his chapter 2), this handbook of history, geography, and ethnography in three parts entitled *The African Continent*, *The Countries and Regions of Africa*, and *Africa Today*, could not be bettered. Being as much concerned with trends as with the facts that set them, Professor Stamp was bound to observe in conclusion that "there is perhaps no part of the world where rapid change is so apparent in the middle of the twentieth century as throughout Africa, . . . changes which are . . . so marked, so fundamental and so rapid that we may properly use the word kaleidoscopic." Where 198 million people on one continent, under peculiar "limitations of natural resources

^{*} New York: Harper & Brothers, 1931.

and physical conditions" are swept rapidly into "conflicting currents" of "political development and the clash of cultures," explosive forces are on the loose.

Trouble ahead or no, one may plead: is not the Africa of exotic beauty, romance, and adventure still there for the visitor, actual or armchair? It must be, or a very business-like publisher would not have invested in one of the most lavish and colorful (literally) travel books we've seen — *South and Central Africa*, edited by Doré Ogrizek. A proper kaleidoscope! With color on virtually every page, replete with Africa's own peoples, their art, and their way of life, such a book speaks to the heart against the destruction of all that is characteristically African. It emphasizes Huxley's strongest impression, that of "almost unbelievable variety." But "on top of all this variety of nature and man there impinge Western civilization and Western industrialism." And Ogrizek echoes Huxley's concern over the leveling weight of the exploitative impact. Where is this Africa going, and how fast? One who lately went to find out is Oden Meeker, American correspondent.

After running the standard reporters' circuit — in at Dakar, through Liberia, around the Gold Coast to Nigeria, down French Equatorial Africa and the Congo (with a rewarding side trip to call on the Pygmies at home in the Ituri Forest), on to South Africa and up by the East African territories to Uganda and Kenya, out through Ethiopia and the Sudan — Meeker came back with his *Report on Africa*. His direct views of "the people and their customs, the cities and the land, the rulers, the explosive issues" are enriched with a wealth of historical background (Africa's venerable human history, it is lately admitted, may well reach back to the first men), especially that furnished by the period of exploration and what is politely called the "opening up" of Africa. In the latter as an historical process it is easy, after the fact, to trace the uneasy because too rapid evolution of most of Africa out of its ages of "darkness" into the harsh light of world concern. The process has set Africa in irreversible — and now apparently uncontrollable — motion.

In the time of Livingstone, Stanley, Speke, Brazza, Rhodes, most of Africa (we are mainly concerned here with what lies south of the Sahara, the reader is doubtless aware) was in the Neolithic Age. Some of it still is. Stone-age freedom ended at the same time as isolation. Colonial subjugation was endured while it had to be. But could the glory and promise of the bright new age be kept hidden from a continent, especially when the new age's managers had moved in and taken over? Meeker found Africans clamoring for education above all else. Education reveals the self. Africans are discovering they can do these new things too, and just as well given a little practice. "Where there is education there is nationalism," Meeker quotes Patrick O'Donovan. "Men desire to be men rather than wards in chancery."

Men desire to be men! The statement is noteworthy precisely because it had to be made at all in admission that somewhere men are being regarded, and therefore treated, as something less than human.

It is well to see this thing at its worst to understand it and be convinced that it exists. Put aside, reader — first, or you will surely do it after — any pride you may have in being (if you are) of a certain favored skin. Then read *Through Malan's Africa* by Robert St. John, white American. If you have read Alan Paton's novels of South Africa, you are emotionally prepared. The shock of cold facts, however, will hit you no more lightly. The details are there to read — they are reported through a sharpened conscience with a sharp and sober pen — and we put here just the core of St. John's appraisal. White South Africa lives in numbing fear of what it is doing to dark South Africa. Apartheid is driving the several shades of dark — African, "colored," Indian, and Malay — into grim unity. Even white good will faces a thickening wall of mistrust. White has the guns — dark the numbers. Every active volcano has its flash point.

A good many South Africans, — British and Boer, — Rhodesians, or Kenya colonials would like to shrug off the American newsman as one who comes to snoop out "the facts" on a whirlwind tour and flies home to rush a quickie shocker into print. Let a Briton speak, then — a Scot if you will. Alexander Campbell came to the Union in 1937, already an experienced journalist. South Africa has been his home ever since, all Africa his concern. His name is known in America to readers of *Life's* splendid Africa issue. Now he has written a tremendous book, *The Heart of Africa*, straight from his own troubled heart. He has followed the story of changing Africa up and down the map, dedicated to getting that story out to a questioning world. From the Gold Coast to the Cape to Kenya, the great triangular heart of Africa is here in compelling pages alive with incident, anecdote, direct conversation. It reads like a well-paced novel, but there is no fiction about it. And its conclusions are no different from St. John's. This is from *The Heart of Africa*:

The whites who live in Africa are suffering from a crisis of conscience. . . . (They) feed themselves on illusions about the black man: that he is an unteachable savage, that he is a child, that he does not like change, that he ought to "develop along his own lines." But in their hearts they do not really believe any of this themselves. And they are afraid. . . . Not only do the most intelligent white people I have met in Africa realize the inevitability of change; they are anxious to speed it up, to bridge the dangerous gap and get through the perilous transition phase as quickly as possible. . . . The root of the evil, for white and black alike in Africa, is the color-bar. It is a cancer that eats into the whites' own moral standards, for in their hearts they know that it cannot be defended.

Era Bell Thompson is acquainted with the color-bar. She is an American, editor of *Ebony* magazine. Some of her ancestors came to America from Asia several thousand years ago; others a mere three hundred years ago, from Africa; a few came from Europe. Africa being strongest in her blood, she wished to go and see what it was like after three hundred years. She did, and wrote *Africa, Land of My Fathers*. This poignant book challenges any of them in power and style. The ability to experience deeply and write tellingly knows no color-bar. Of some of the things that happened to her, particularly in Rhodesia, South Africa, and in British East, most of us would cry out, first, "This shouldn't happen to an American!" then at once, "This shouldn't happen to a human being!" It is good that Miss Thompson has a wonderful sense of humor, and much tolerance.

With belittlement of the African instilled in her life, she naturally was eager to find some evidence, in Nigeria, her ancestral land, of Negro achievement. She saw the incomparable bronzes of Ife: "Here, indeed, was proof of the African's cultural past, priceless art fashioned by black hands many centuries ago. If these were my ancestors, I had reason to be proud." And Miss Thompson came home with renewed pride, also, in being American (America can be proud of her).



Perhaps the greatest tragedy to men like Campbell is that the color-bar drives a wedge of mistrust between persons and groups on both sides who earnestly want full confidence and equality. "African leaders," St. John reports, "are almost unanimous in their agreement that there are only three white South Africans they trust," two of them Anglican clergymen. And this

when there are many whites who devote their lives, sometimes at great personal risk, to the ideal of full equality. Ogrizek said, "It can never be over-emphasized how much the Whites stand to gain by really making friends with the Black peoples." Why, when they could have had friendship merely for returning it, did they choose instead to live with fear? Is it because it is harder on the conscience to exploit a friend? But what does fear gain them in the long view?

Fear knocks on the white man's door in South Africa, and he responds with naked force. In the Union, rebellious Africans fill the jails, but the white man has guns and fair numbers, and still seems strong. The case is different for the fewer, more scattered whites in other territories. Fear knocks on their door too, and they are far more hopelessly outnumbered. . . . The current race war in Kenya is a warning for places like Nyasaland, Northern Rhodesia . . . (*The Heart of Africa*.)

Race war! That insane term should be as devoid of currency in our time as "Holy Inquisition" or "black death." The actuality of it today in Kenya stems from another form of insanity — "white supremacy." This covers, among other things, the idea that it is all right to take the best of the black man's land and retain him in peonage — he is a lower grade of human being, and of course only proves it by striking back! In Kenya, however, a certain scientist is quietly trying to bring his fellow men to their senses before total disaster. There is a slim book that may yet have a bearing, out of all proportion to its size, on the upshot of Kenya's race war — *Mau Mau and the Kikuyu*. The author, L. S. B. Leakey, anthropologist, director of the Coryndon Museum, Nairobi, was born and raised among the Kikuyu, a missionary's son. No white African is equally qualified to tell the tribal customs and history, the violation and misunderstanding of which gave the Mau Mau extremists their excuse. This potent yet dispassionate little book must be read to know the truth and see beyond the impasse. It has already set influential British minds to working in new directions.

The African view, it should be said in conclusion, is not wholly dark. Nigeria may soon be a full-fledged nation. The Gold Coast is on the way. Belgian paternalism in the Congo appears to evolve toward a better deal for Africans, materially and physically. The Portuguese colonies enjoy a somnolent peace, at least; and the French want to make their Africans Frenchmen! The color-bar is lowest with them, and they have going an interracial program of scientific, social, and cultural research. Africans find opportunities for higher education, professional and technical, increasing in many countries — and make the most of them.

Nevertheless, the bright view for all of Africa is still a long way off. The world will see it only through the conquest of Africa's evils — and that is a job for Africans of every color, working together. D.G.K.



Africa: A Study in Tropical Development. By L. Dudley Stamp. John Wiley & Sons, Inc., New York. Chapman & Hall, Limited, London. 1953. vii + 568 pp., numerous photos and maps. \$8.50.

South and Central Africa. Edited by Doré Ogrizek. The World in Color Series. McGraw-Hill Book Company, Inc., New York. 1954. 431 pp., profusely illustrated in halftone and color. \$6.50.

Report on Africa. By Oden Meeker. Charles Scribner's Sons, New York. 1954. 410 pp., 75 halftones. \$5.00.

Through Malan's Africa. By Robert St. John. Doubleday & Company, Inc., Garden City, New York. 1954. 317 pp., endpaper map. \$3.95.

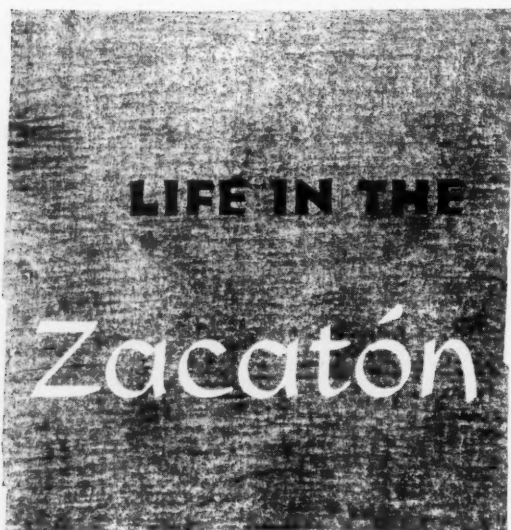
The Heart of Africa. By Alexander Campbell. Alfred A. Knopf, New York. 1954. xv + 487 + viii pp., 30 photos, 2 maps. \$5.00.

Africa, Land of My Fathers. By Era Bell Thompson. Doubleday & Company, Inc., Garden City, New York. 1954. 281 pp., endpaper map. \$3.75.

Mau Mau and the Kikuyu. By L. S. B. Leakey. The John Day Company, New York. (1954.) xi + 115 pp., endpaper map. \$2.50.



The zacatón rings Mexico's great volcanos, such as Popocatepetl, with grassland from nine to fifteen thousand feet. Its grasses take the place of shrubs in the forests of the region.



ZACATON is the local name for an aggregation of several coarse bunch grasses which grow high on the slopes of Mexico's grandest mountains. On Popocatepetl it covers the ground above the 9,000-foot level and grows with undiminished vigor under the canopy of pines in place of underbrush, as well as on the open slopes and in the mountain valleys. In places it reaches from two to three feet in height and sometimes becomes so dense as to be almost impassable.

The ecological conditions under which the zacatón thrives best are directly connected with a transverse range of volcanic mountains which extends across the middle of the Republic in an east-west direction at the southern end of the great central plateau. The loose, ashy soil, the torrential summer rains, winter fogs and snows, together with the cool high-altitude climate, seem to consti-

LLOYD GLENN INGLES

tute ideal conditions for the ubiquitous but strikingly picturesque plants.

This volcanic range where zacatón reaches its best development is over 400 miles long and 60 miles wide. It starts in Veracruz on the east with such giants as Cofre de Perote (13,552 feet) and Orizaba with its 18,300-foot snowy summit. It includes beautiful Popocatepetl (17,887 feet), and Iztaccíhuatl (16,883 feet), and the newest member of the chain, the fire-spitting Parícutin — now almost inactive — in Michoacán. Thirteen of the peaks rise to more than 12,000 feet, and three of them exceed 17,000. Fossil remains of Pleistocene mammals and evidences of glaciation indicate the region was at one time much colder than it is at present.

In this region of tremendous volcanos all of the life zones of North America are fully represented, and the natural forces that bring about change in plants and animals have here wrought a flora and fauna with many peculiar species found nowhere else in the world.

Over all this region below the perpetual snow line but above the 9,000-foot level grows the zacatón. Just as the term "chaparral" is now used in the western United States to designate an aggrega-

tion of shrubby plants, so "zacatón" is used in Mexico to designate this aggregation of grasses that covers hundreds of square miles of these volcanic mountains. In general, however, two species of grasses dominate all of the rest; these are *Epicampes macroura* and *Festuca amplissima*, among the clumps of which live many special creatures. This community of singular plants and animals constitutes the *Transverse Volcanic Biotic Province*. Some of these interesting species are shown in the photographs and some of their salient features are described in the following pages.

In the soft, ashy soil in the open places among the zacatón are frequently seen large piles of loose earth which are made by the Merriam pocket gopher. This rodent, with deep, fur-lined pockets on either side of its mouth, is almost entirely fossorial and rarely comes to the surface except to push the earth out of the burrows. When compared with the pocket gophers in the western United States, this species is a giant. Its habits, however, are very similar and doubtless it feeds on the roots and stems of many kinds of plants just as its northern relatives do.

There is no doubt about the damage done by such large root-eating mammals in the *milpas* of



John Ingles, the author's 7-year-old son, found walking difficult in the lushly growing zacatón at 10,000 feet on the slopes of Popocatepetl.

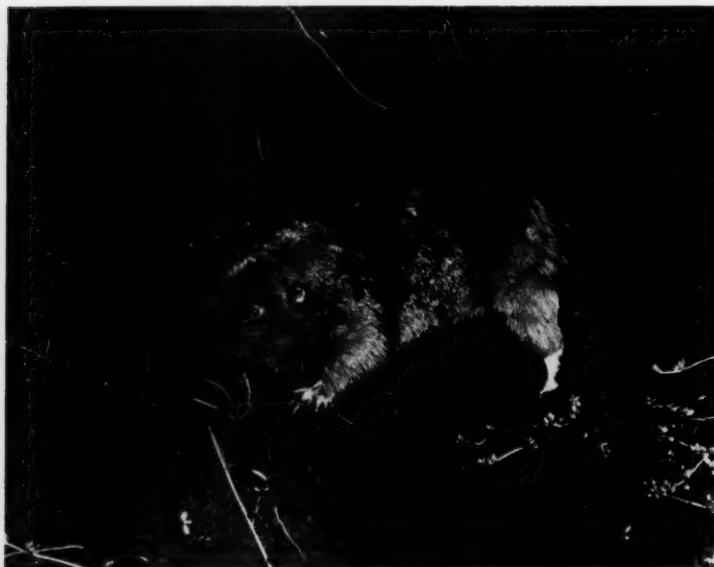
Most numerous of all rodents in the zacatón is the little golden-backed harvest mouse.

It came oftener to the oatmeal and peanut butter baits than all the other animals combined. When caught in the live traps it would occasionally sing a very high-pitched song reminiscent of some tiny warbler.



the farmers. In these mountain cornfields the animal frequently causes so much damage that special efforts are made to control it by employing men especially equipped to destroy it. Almost every pueblo has such a man, known locally as a *tucero*, who can catch the pocket gopher with a primitive deadfall type of trap which drives a

sharpened forked stick through the body of the animal as it approaches the mouth of its burrow. These *tuceros* are paid from three to five pesos for each *tuza* (Spanish for gopher) which is caught, and not infrequently they can make fifteen to twenty pesos daily in the same cornfield where their neighbors make only six to ten pesos doing



▲ Though rarely seen the Merriam pocket gopher is common and is the largest rodent in the zacatón. It sometimes invades the Indian farmers' *milpas* where it does much damage. ➤ This primitive deadfall trap the *tuceros* (gopher catchers) used was much more efficient than the live traps we brought from California.





The volcano rabbit or *zacamot* rarely occurs anywhere else than in the zacatón. Like our western pika it almost always utters a high-pitched squeal as it darts to safety under the tall protecting grasses.

The gray fox ranges much more frequently at elevations below the zacatón, but occasionally invades its lower limits to prey on the numerous rodents there.



hard labor. Sometimes as many as ten animals are trapped in one day. Hence the tucero is a useful and highly respected individual in the community and his job is passed on to one of his sons by inheritance, just as the milpas of the farmers are. It was somewhat embarrassing for us with our specially constructed live traps which functioned so well with the pocket gophers of California, to have to call upon the services of the tuceros in nearly every community we visited in order to obtain sufficient specimens for study skins. The Merriam pocket gopher simply would not enter the trap far enough to spring it.

Around the mountain meadows where it is too wet for the zacatón to grow, these big pocket gophers dig their burrows so close together that the surface is almost covered with dirt from their numerous mounds. The burrows act as a drainage system and the soil eventually becomes dry enough for the zacatón to grow. Hence the plants profit too, by this association with the large rodent.

The effect of burrowing rodents on soil-making and water conservation is too often appreciated only by a small group of ecologists, and in such uncultivated places as the zacatón the pocket gophers doubtless are beneficial to nature and to man's ultimate interests in making soil and in sinking water which keeps the springs flowing throughout the year.

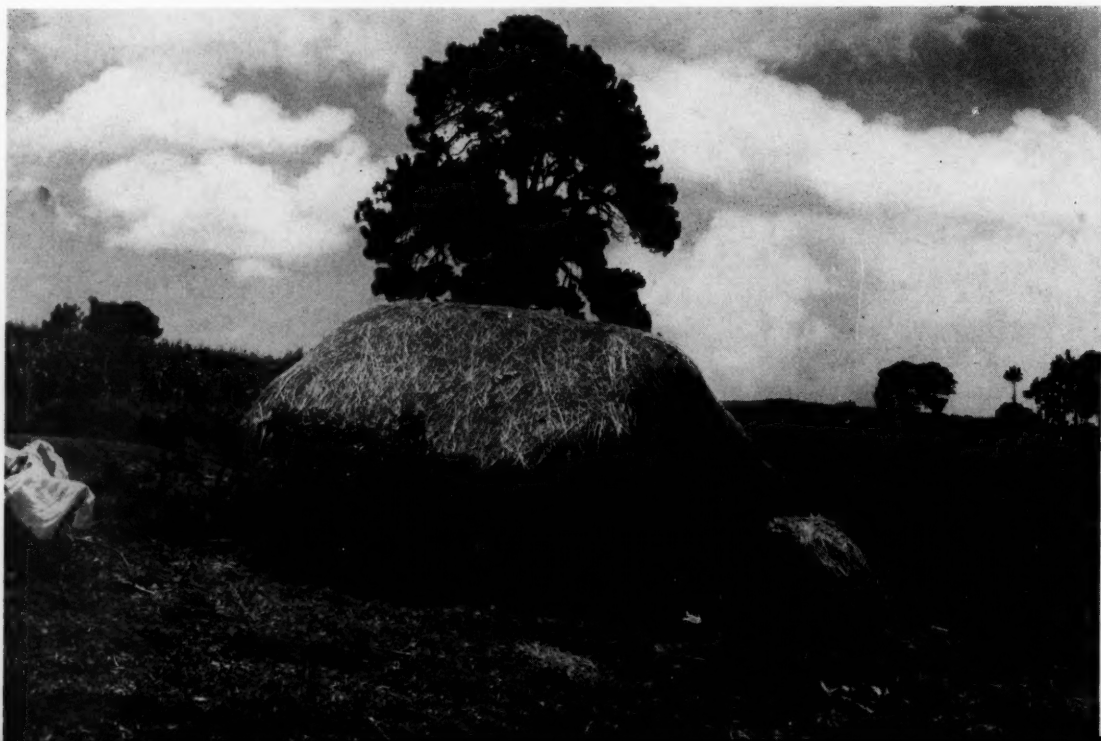
Another rodent that is found very abundantly in the zacatón is the golden harvest mouse (*Reithrodontomys chrysopsis*). This little mouse, with grooves on its upper incisors and beautiful golden

fur, was captured on the Paso de Cortés, between Popocatepetl and Iztaccíhuatl, along with Mexican meadow mice (*Microtus mexicanus*) and the black-eared deer mouse (*Peromyscus melanotis*) from which it is easily recognized by the above-mentioned characteristics. While the golden harvest mice were held as captives in the live traps they frequently gave voice to variable high-pitched songs somewhat reminiscent of that of warblers. Practically nothing is known about the habits of this handsome little mammal. Whether it builds bird-like nests off the ground as some of its northern relatives do is not known. Indeed, it is not known what the little creatures eat or how they fit into the rigid requirements of their rugged montane environment.

Sometimes in the same live trap with the golden-backed harvest mouse we caught a much larger rodent which at first glance appeared to be a large deer mouse (*Peromyscus*). In certain cranial and dental features, however, it differs from all other rodents and thus we came to know the volcano mouse (*Neotomodon alstoni*) which is another species to be found chiefly in the zacatón. In the pine woods near Cuernavaca it is very common and digs its burrows beneath the large bunches of grass. However, it frequently plugs the opening, and because its tracks are rarely seen one would never suspect the presence of the animal even in places where it is abundant. The litters of three or four young are born during the summer months.

In some ways the most interesting of all the creatures that live in the zacatón is the little vol-

Where the Indians' milpas are near the zacatón they use it for many things—brooms, rain coats, and roofs for their houses. Such a house stays relatively dry even during the heaviest of summer rains.





This monument in El Paso de Cortés at 12,000 feet marks the spot where the Conquistador got his first view of the Aztec capital many miles to the north. The sparsely growing zacatón ranges on up on both Popocatepetl and Iztaccihuatl to the snow line.

Photographs by
the Author

cano rabbit (*Romerolagus diazii*), called *zacatuche* or *teporingo* by the natives. It is much smaller than an eastern cottontail and reminds one of the pika that lives in the rock slides high in our western mountains. It has clearly defined runways under the clumps of zacatón which, if followed far enough, will lead to a hole beneath a pile of rocks or the protecting roots of some pine tree. The zacatuche frequently rests or sleeps in the open close to large clumps of grass — perhaps even in the full sunlight — but it is rarely seen until it utters its sharp bark-like squeal and then darts quickly into a runway and is soon out of sight. To my knowledge the zacatuche and the pika are the only two lagomorphs that regularly produce vocal sounds.

The nest is generally made of a clump of dry pine needles in the center of which is a ball of fur that the mother has been pulling from her own skin. The litter of two or three young apparently remains in the nest until the half grown juveniles can forage for themselves.

One plant always appears to be included in the volcano rabbit's diet. Aromatic, a member of the mint family, *Cunila lythrifolia* grows in places to form dense thickets. Here the little rabbits are always very numerous, but whether eating this pungent plant food has anything to do with making the flesh of the volcano rabbit unpalatable or not I do not know; nowhere, at any rate, could I

find anyone who used it for food, although the two species of cottontails (*Sylvilagus cunicularius* and *S. floridanus*) with which it is associated are widely hunted for both their flesh and skins. Nevertheless, the zacatuches are frequently shot, apparently for no other reason than that they make good targets. They do not invade the milpas and cause damage, as the larger cottontails all too frequently do.

Wherever there are so many small rodents and lagomorphs one is certain to find flesh eaters which obtain energy for their own living by feeding on them. Although none of these is peculiar to the zacatón fauna, nor even to the Transverse Volcanic Biotic Province, they doubtless find living very easy in the high grass-covered mountains. Besides many birds of prey, the wildcat (*Lynx rufus*), weasel (*Mustela frenata*), and the gray fox (*Urocyon cinereoargenteus*), must take a great number of the rodents every day. According to the native farmers the wildcat is fairly common and preys chiefly on the volcano mice. The weasel is much larger than its counterpart in the United States and is perfectly capable of entering the burrows of the Merriam pocket gopher and engaging the ferocious rodent in its own runways. It is known to prey on all kinds of small mammals and doubtless even attacks the zacatuche whenever it can be approached. Although the gray fox normally lives at lower levels than the zacatón its

hunting range at least includes the lower part of that biotic community. Strangely enough the mountain people call it *gato montés*, which means *mountain cat*. Why a member of the dog family should be called a cat was not clear at first until I learned of the arboreal predilections of these foxes which are decidedly smaller than their more northern relatives. Not infrequently they climb trees by jumping from branch to branch. On one occasion we saw one of these little carnivores jump into a hole near the base of a hollow tree only to stick its head out of another hole a few seconds later to reconnoiter many feet above the ground. Although they are reported to be largely nocturnal, we saw them occasionally as they crossed the road in full sunlight.

Of course there are many other creatures whose home is in the zacatón. The tiny salamander which we could not identify that lives under the dense grass in damp places, and the little striped sparrow that runs on the ground and only occasionally flies over the waving grasses are as much a part of this biotic community as are the species described here. All of the species of animals and plants are interdependent, and thus they form a unit within this Transverse Volcanic Biotic Province.

Thus as the diastrophic forces long ago started to build up a chain of great volcanos, at the same time there were also initiated those peculiar physical conditions which fashioned the animals and plants that now comprise the zacatón, one of the most interesting and picturesque biotic communities in North America. Even man, himself, has made adaptations to live in the zacatón. He uses it to build his rainproof houses; he makes good rain coats using its coarse, long blades; he manufactures a variety of brooms and other articles from its coarse stems. Because of its coarseness, his livestock will not eat it, and hence the zacatón remains about as it was over 400 years ago when the Spanish first saw it, and has not been ruined by overgrazing as unfortunately have many other grassy regions throughout the world. Large areas of zacatón are now included in two of Mexico's national parks. At Zempoala Lakes it grows lushly beneath the pines and oaks and on Popocatepetl and Iztaccíhuatl it leaves the woods at timber line and covers the ashy slopes almost up to the fields of perpetual snow. We are glad that Mexico has set aside these natural areas for posterity and for the protection of the zacatón with its interesting mammals.



woodpecker specialists

PROBABLY no group of North American birds has more curious habits, or can be so readily observed by the ordinary bird student, as the woodpeckers. Few of our other bird families are more specialized for their work. None, perhaps, is of greater economic value. To discover for oneself the diverse crafts to which these brightly colored woodsmen have become adapted, and the strikingly different habitats into which they have ventured to seek their livelihood, is an endlessly fascinating game. From the great crimson-crested pileated woodpecker — the wild-voiced cock-of-the-woods — to the neighborly Gila woodpecker that substitutes giant cactus groves and Pueblo Indian rooftops for his original forest home, they are an ingenious, hardy lot.

The three Western woodpeckers pictured here are typical of the feathered woodworking fraternity and the extent to which these birds, all retaining the same general physical form, have diversified their habits and "professional" skill. All belong to a family noted for its efficient guardianship of the trees. Yet two of these one-time destroyers of arboreal insects have fitted themselves into other life niches and other ways of making a living.

The red-shafted flicker, with his salmon-red underwings, white rump patch, and loud stirring call notes, has largely deserted the tree trunks as a food source and become an anteater and berry picker. Spending so much time on the ground, he has assumed a protectively colored plumage of earthy browns, patterned with crimson and black. His bill is long and slender for probing anthills, while an exceedingly long sticky tongue is as useful to him as to the four-footed anteaters.

After his bounding flights, the flicker is as likely to land crosswise upon a limb like any ordinary perching bird as to clasp the tree-bole bark woodpecker-fashion. Still, he chisels out his own nest hole, often in solid wood, not diverging in this respect from accredited woodpecker tradition the way another family deviationist does — the Lewis or crow woodpecker. The latter seeks out a natural wood cavity, if he finds no abandoned tree-trunk homesite carved by one of his clan.

The black and white pattern of the hairy woodpeckers typifies the "standard model" for the family. Their industrious lives are almost wholly spent in dextrous pursuit of their craft — drilling, hammering, hewing, and chiseling out bark beetles

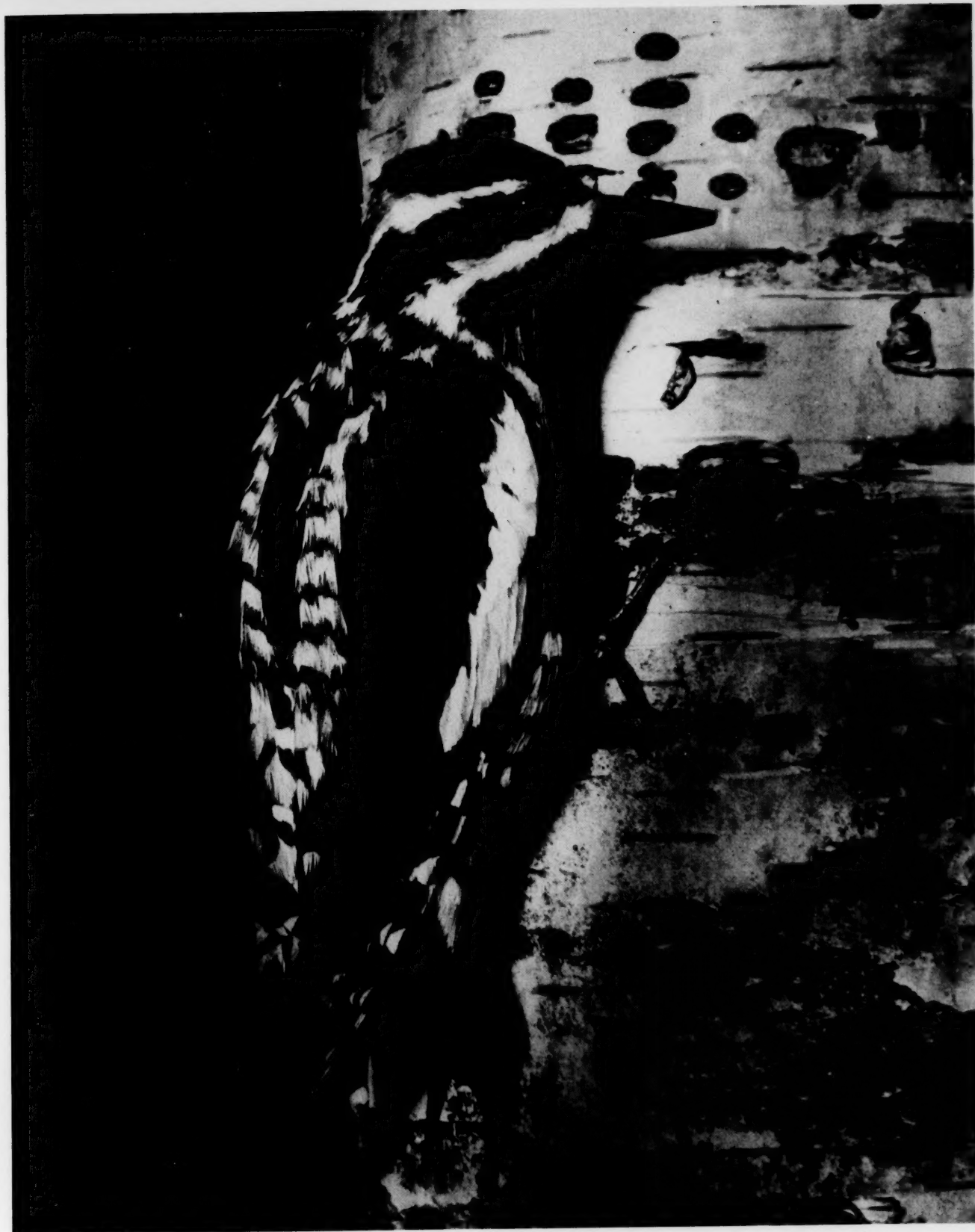


PHOTO STORY BY JOHN L. BLACKFORD

Red-naped sapsucker.



Northern hairy woodpecker.



Red-shafted flicker.

and borers that infest the trees. Every move and habit is characteristic of what we think a woodpecker should be; indeed, it is from this species and its smaller duplicate, the downy, that we derive the common impressions of our tree-tapping friends.

Unique among woodpeckers specializing in odd use of their skills are the sapsuckers. Drilling is commonly confined to outer and cambium layers of bark wherein they excavate their sap-wells — shallow, squarish bark basins in regular patterns upon the tree trunks. From these “fountains” the avian toppers imbibe with brush-tipped tongue the sweet-flowing sap. Flies and other insects, attracted to the sap cisterns in large numbers, are consumed by their proprietors.

Many unfounded popular beliefs about woodpeckers in general are owing to sapsuckers. Yet their value in insect control wins protection for these birds also. Moreover, their work is chiefly upon quick growing, short-lived, many-stemmed trees such as the deciduous alders, birches, and willows. Dead punky trees that occasionally result from girdling are invaluable as homesites for chickadees, nuthatches, and others lacking the equipment for nest-hole drilling. When woodland secrets are revealed, we discover the sapsucker as an indispensable part of nature's plan for the well-being of many wildlife communities.

Red-naped sapsucker. — Taken in mixed broadleaf and conifer woods in northwestern Montana, at sap-wells on white birch. Red-napes visited this station regularly, keeping the sap-wells flowing and guarding them against squirrels and calliope hummingbirds. Fotoflash, 1/400 sec. at f.32. Fast Panchro Press film, no filter; from blind, using pull-cord. Much observation of the species preceded the picture-taking.

Northern hairy woodpecker. — Taken in western Montana on trunk of Douglas fir near feeding station, a tree to which the bird habitually came, or to which he flew after visiting the feeding tray. Sunlight 1/200 at f.16. Fast panchromatic film, no filter. A tree-trunk location permits this intriguing and obliging, though keen and somewhat wary bird to assume his most typical pose.

Red-shafted flicker. — Taken at nest hole in yellow pine stub in cutover pine land, western Montana. Fotoflash, 1/200 at f.36. Super Panchro Press film. From blind, using pull-cord. Attractive and characteristic poses are not secured every time — there are many discards.



MARVIN WEESE

TO THE HAUNTS OF TAHQUITZ

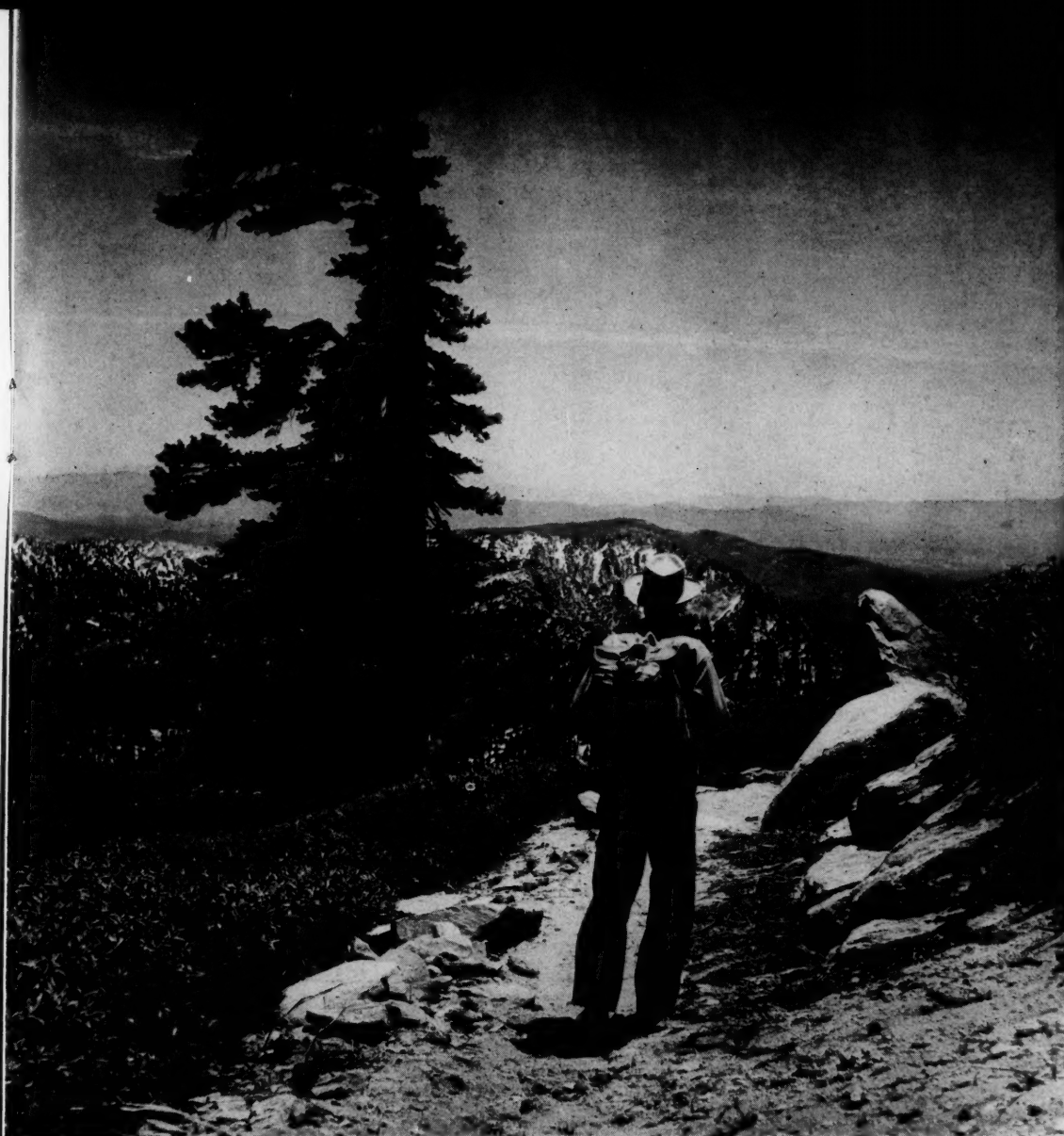
PHOTOS BY VAL SAMUELSON

SAN JACINTO is a ten thousand eight hundred-foot ridge of granite pushed up along a fault line of the earth's crust to form a barrier between the desert and the California coastal plain. It is the youngest mountain in this country, and from its growing pains often come deep rumblings from the interior of the mountain. The Indians thought these rumbling sounds came from a legendary god Tahquitz, who lived in a cave in the mountain and made away with young maidens when he was in a stormy mood.

The mountain of the god Tahquitz shudders still with sudden activities. But on a day in late May we decided to go to the haunts of Tahquitz and even to the highest peak to see the sunrise over the desert view that a great naturalist has called the most sublime spectacle on earth.

Idyllwild, nestling in Strawberry Valley at an elevation just over five thousand feet, is about halfway to the top of the mountain. Idyllwild is a charming little village inhabited by people who live here because they love mountains — six thousand in summer and six hundred all the year around.

Between Idyllwild and the saddle ridge at eight thousand feet the trail winds through a fern-



There is something exhilarating about high places—every turn of the trail brings breath-taking beauty.

decked forest of pines and California black oak. Much of it is western yellow pine and its close relative, the Jeffrey pine with large-flaked, buff-colored bark and long needles. The yellow pine has small three-inch cones and the Jeffrey has much larger ones. But the Coulter pine has very heavy beautiful cones that run to ten inches. Here also is the sugar pine with its very long cones and rather short needles.

The cone and acorn harvest provides most of the food for the Anthony tree squirrels, generally called gray squirrels, that inhabit this part of the

forest. They are handsome gray fellows with white vests and wide fluffy tails, always pert, inquisitive, chattering or scampering from tree to tree.

The white-breasted nuthatch with its sharp bill at a jaunty angle scoots up and down tree trunks. The chickadees in their pert black caps call cheerily from one to another as they perch and cling over or under a swinging branch, searching every part of the forest for hiding insects.

In May the wild azaleas growing in moist cool places in the canyon bottoms are putting out clusters of buds, with pink tips showing through the



Mount San Jacinto, 10,831 feet high, hangs over Palm Springs at 455 feet on the desert floor.
This ten thousand-foot wall holds back Pacific rains to make a desert here. (Frank Bogert)



brown sheath. By June they will be a mass of white blossoms with long-remembered fragrance.

There is much manzanita on this mountain, large specimens in the middle areas with curving branches and smooth red bark. Here it grows to fifteen feet but in the higher areas there are thickets about shoulder high where the deer find shelter. The tiny bell-shaped blossoms, just a little lighter in color than the bark, now cover the terminal branches and in July there will be the small juicy berries which many villagers gather for making pungent manzanita jelly. The Indian inhabitants of the mountain dried the berries in the sun for storing, or pounded them to make a mild fermented beverage.

At the saddle is the junction of trails which lead in many directions, two miles south to Tahquitz Peak and five miles north to San Jacinto. Between these peaks is a series of high valleys and ridges making up the mountainous wild area.

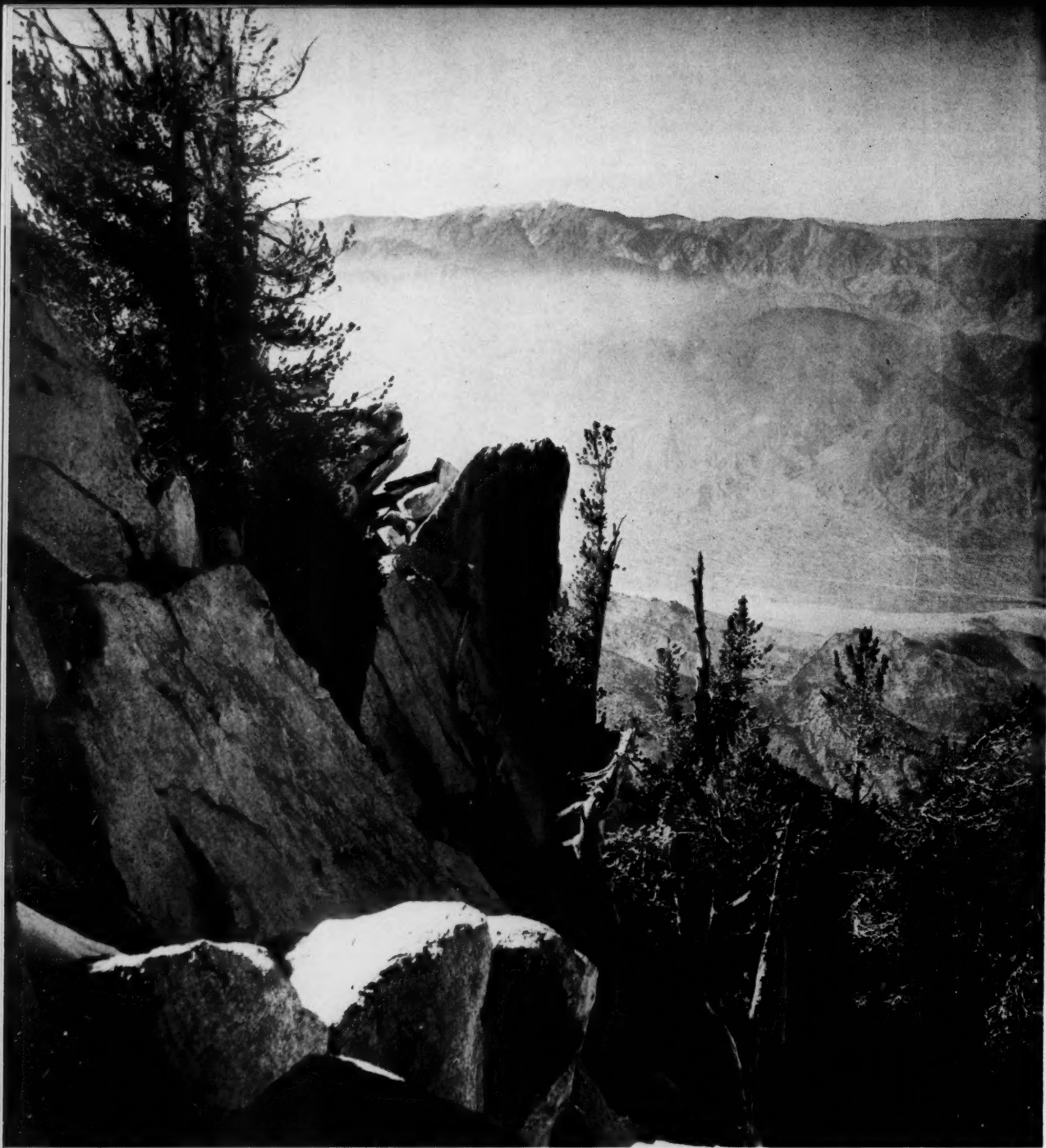
Tahquitz Valley is a level grass-covered meadow at eight thousand feet with a stream that sings of snow banks to the accompaniment of the organ in the pines. This bubbling brook flows happily eastward to become the Tahquitz Creek which drops down into the desert at Palm Springs.

Only a few spots of snow remain in May and June but in the winter the rangers come on snowshoes to Tahquitz Valley to measure the snowfall which may be a heavy blanket of four to eight feet. It is a precious source of moisture which the valleys and desert below could hardly do without.

About halfway along the trail to San Jacinto is Wellman Cienega with its running springs, a good place to stop for noon refreshment. A woodpecker with the same idea pounds loudly on a tree nearby. A chipmunk takes a quick look around the trunk of a pine tree and streaks away in a flash. Blue-crested mountain jays dart about vigorously planting more acorns and pine nuts than they will ever dig up, and we wonder how many trees here have been planted by jays and chipmunks.

The cienega is a steep amphitheater of mossy banks and seeping springs, the birthplace of a stream called Willow Creek. Circling around the huge basin of Round Valley at about ten thousand feet the trail reaches the junction where it descends into the valley or rises to San Jacinto Peak.

Now the views are magnificent as the surrounding peaks fall below us. Tahquitz Peak loses face rapidly. And far beyond fold after fold of mist-



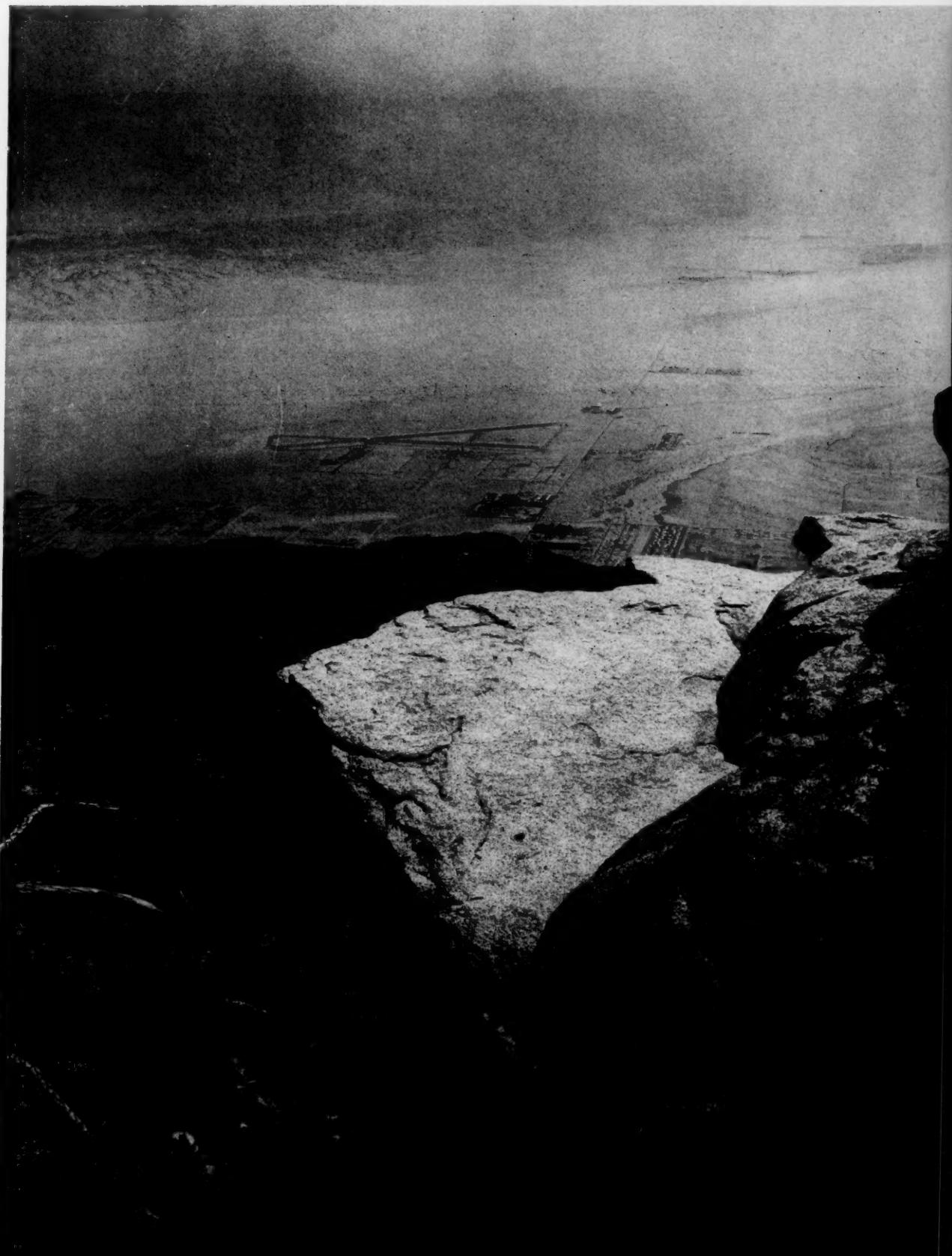
Broken blocks of granite ride the crest of the peak—this is one of the steepest slopes on the North American continent.

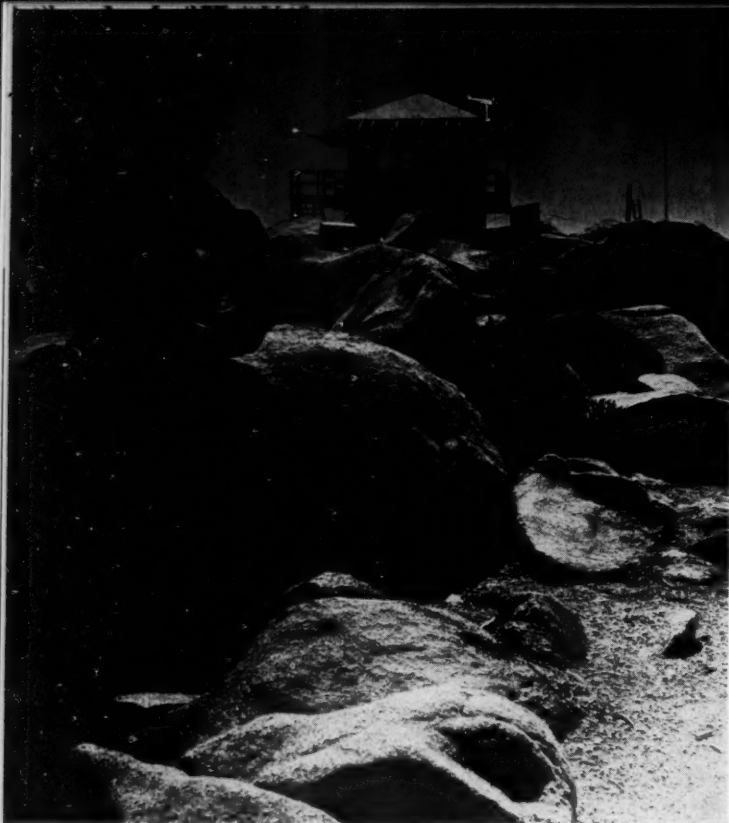
shrouded ridges the Santa Rosas show dark crests on the southern skyline, like the receding tones of a soft-ground etching.

There is something exhilarating about high places, it may be the shortness of oxygen as well

as the feeling of height, but at every turn of the trail there appears breath-taking beauty. Twisted trunks of bleached pine trees with their muscular arms uplifted march like pilgrims to a mountain shrine.

John Muir called this view of the desert from Mount San Jacinto 'the most sublime spectacle . . . on this earth.'





The Forest Service Tower at Tahquitz Peak is the observation post of the forest area.

Along the high wind-swept ridges the very adaptable limber pine braces itself with thick twisted trunks, strong branches, and stubby flat tops. If necessary it will lie along the ridge and shape its branches to cling stubbornly to a granite boulder. The very old are bowed and broken derelicts of the wind and snow. In sheltered places the lodgepole pine grows straight and tall and in the thickets the tall slender trunks made the ideal poles for Indian lodges. Both are silver-barked, short-needled pines and considered by some botanists to be one species, but the limber has five needles to the bunch, the lodgepole only two.

On the sunny slopes the trail is clear and open, but Jean Peak rises ten thousand six hundred feet on the west and in its shadow is a mile of snow banks. Sometimes you walk on the top of a snow bank but without warning soft spots will drop you into surprising positions. And a trail is not easy to follow when there is more snow than trail.

With the sun sinking rapidly behind Jean Peak and the thought of an overnight camp without shelter we reach the edge of that shadow area

and there is the clear southern slope of San Jacinto beckoning upward. With an open trail we soon reach the rock shelter at the foot of the peak. The last hundred feet are the hardest for there is no trail over blocks of granite.

After that long approach from the south there is the sharp wind of the summit and the sudden snow-banked drop of that north pitch to the floor of the pass. This is one of the steepest descents on the North American continent. On the northeast the abrupt drop is more than ten thousand feet to the desert floor.


Sharply broken blocks of granite, tilted at all angles, ride the crest of the peak. For not many years, as mountain age is counted, have passed since this fault-block pushed up from the earth's crust to ten thousand eight hundred feet. That violent upheaval must have been spectacular, yet this up-thrust could have happened gradually over a period of a million years. San Jacinto is younger than the Sierra Nevada but its sharp lines are similar.

In the silent dusk we retreat to the rock house shelter with pine knots from fallen old trees and soon a roaring fire in the fireplace relieves the chill. There is no water at the top but with a pot of snow water bubbling on the swinging grate we are ready for a cup of broth or coffee and a hikers' meal.

The bunks are a little hard but suitable places for unrolling the sleeping bags, the fire is cozy, and we are lulled to sleep by the wind whistling through a few unchinked crevices. Rest is a wonderful thing after a day's climb.

If anything, the morning view from the peak is more beautiful than the evening. The desert color is richer and the morning sun sparkles on Salton Sea. With binoculars you can see the Gulf of California in that direction, and in the west there is a long coast line of the Pacific.

There below, southern California spreads out like a relief map with nothing but distance to challenge the view. The desert rolls to the Colorado River. On the north the high ridge of San Geronio, though higher, seems to be on your high level. It is surprising what a new viewpoint can be gained by two miles in an upward direction from a throbbing countryside.

And it was John Muir, the great traveler of the High Sierra, who said, with good reason: "The view from San Jacinto is the most sublime spectacle to be found anywhere on this earth — the glory of this sunrise you will never forget." 



ERNEST MAXWELL MOUNT SAN JACINTO TRAMWAY OR WILDERNESS?

OPPPOSITION to the Mount San Jacinto tramway in Riverside County is not a negative campaign. Conservationists who have spearheaded the battle against the \$10,000,000 project are not opposed to tramways in general. They are *for* the preservation of wilderness areas.

The public is not generally aware that the proposed aerial tramway from Palm Springs would have its upper terminal in the San Jacinto Wild Area, one of the few remaining regions left in southern California that is free of commercialism and mechanical developments.

To the conservationist the construction of the lift

means that the wilderness is out. Easy access means crowds. Crowds bring features that invariably spell doom for primitive lands. History supports the conservationist.

Originally the upper portions of the San Jacinto Mountains overlooking Palm Springs belonged to the Southern Pacific Company and, through the U. S. Forest Service, to the public. The railroad company owned every other section, and the remainder was administered by the Forest Service as a primitive area.

In 1930 through a three-way exchange between the Forest Service, Southern Pacific, and the California State Park Commission, the Mount San Jacinto State

Ideal for skiing? Skiers don't consider this kind of slope, quite common in the San Jacinto Mountains, exactly the best suited for winter-sport development. A Forest Service survey party. (Val Samuelson)

Park was established. Approximately 12,000 acres in the heart of the primitive area was set aside as a park. Together with Federal land about it, the park made up the San Jacinto Wild Area, comprising 33,291 acres.

The San Jacinto range is an outstanding attraction in itself. It is the most southerly example of high Boreal life zones to be found in California. Because of its sheer escarpments the range offers a wide variety of animal and plant life. San Jacinto Peak is 10,831 feet high, and five air line miles to the east the elevation is less than 400 feet.

When the state park was established at the top of the San Jacinto Mountains it was generally agreed that the area would remain in its wild state. On October 23, 1930 Mr. William E. Colby, chairman of the State Park Commission, addressed a letter to the Board of Supervisors of Riverside County.

In his letter Mr. Colby said: "... As a result of the exchange and purchase agreed upon, not only will the Mount San Jacinto State Park be established but all of the railroad holdings within this area of some 33,000 acres will have been acquired either by the state or by the U. S. Forest Service and this entire area centering about San Jacinto Peak and Tahquitz Peak will be held as a wilderness reservation for the benefit of the public."

The minutes of the State Park Commission of June 27, 1937 showed that the commission "unanimously adopted the policy of the national Forest Service in the preservation of the San Jacinto Primitive Area."

Conservationists believed that the area was therefore dedicated forever as a wilderness. However, in 1939 a bill was introduced in the State Legislature calling for a "Palm Springs Winter Park Authority" to construct a tramway and resort within the wild area.

The bill was vetoed, as a similar measure was in 1941. A third bill introduced in 1943 was pocket-

vetoed. Nevertheless, in 1945 a fourth proposal was passed, and the Winter Park Authority was born.

The law gave the Authority certain rights on both state park and Forest Service lands, and empowered it to issue revenue bonds for financing its purposes. The original limit was \$3,000,000, but at the present time there are no restrictions.

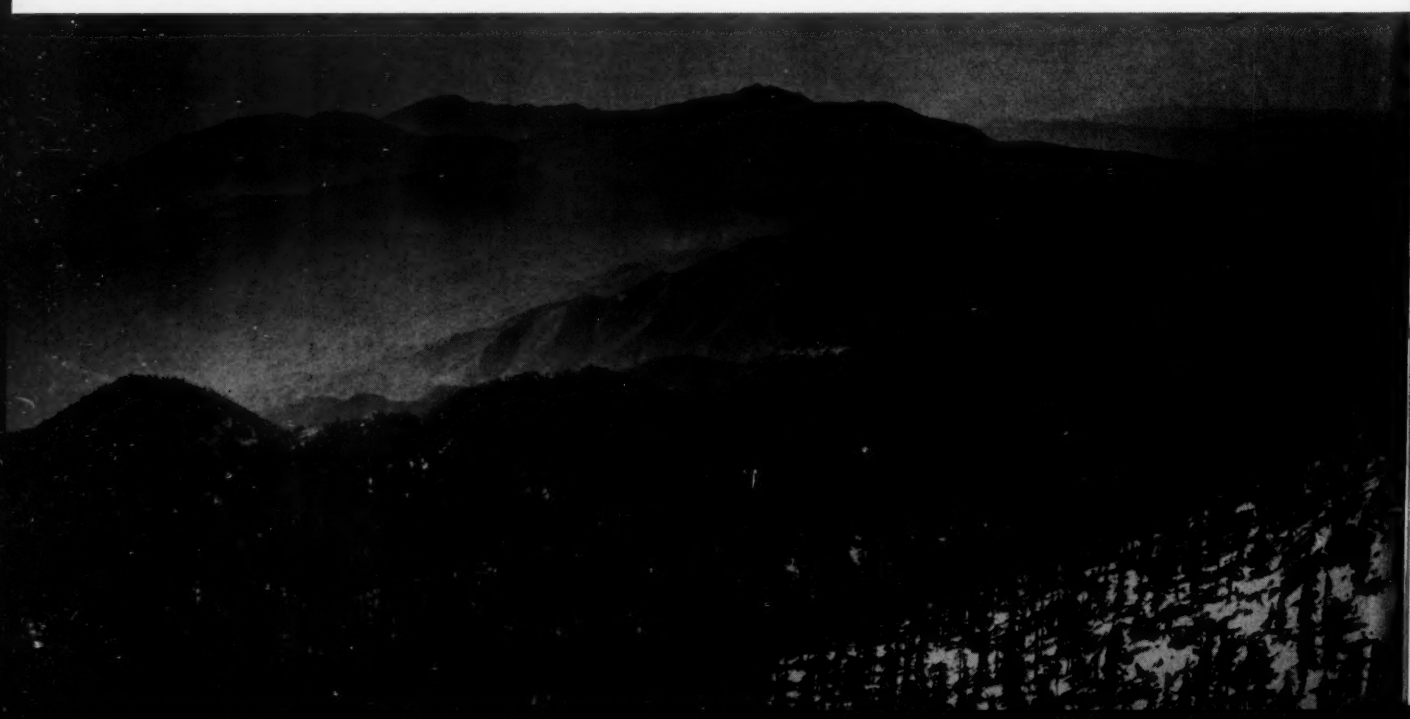
Among the privileges extended to the Authority in the Wild Area was the construction of a terminus at the upper station (Long Valley, 8,515 feet high) together with necessary equipment for the operation of the tramway and housing accommodations for employees.

Also permitted, according to the contract, were — "... power lines paralleling said tramway ... telephone lines necessary, convenient, or useful to the Authority ... water supplies and drainage and sewage systems ... ski huts, ski hostels, restaurants, buildings, and all other works, property, or structures necessary, convenient, or useful for the development of winter sports and any other recreational facilities ..."

Supporters of the tramway declared that the project would open the country to tremendous use. As many as 1,680,000 persons a year are expected to ride the lift, and great ski slopes will be made available to the public.

Writing in *The Skier*, official publication of the Far West Ski Association, A. Andrew Hauk, vice-president of the association, and Lute Holley, chairman of its Area Development Committee, declared that the San Jacinto area "is by no stretch of the imagination an ideal, or even suitable ski area."

California skiers have consistently taken a dim view of the higher elevations of the San Jacinto Mountains as a ski area. Sheer cliffs, rugged terrain, and the hot desert sun, they argue, make the region both unsatisfactory and hazardous.



Since the Winter Park Authority was established by the State Legislature it has been regarded in official circles as the will of the citizens. However, conservationists reply that the public has never been given the true story behind the scheme.

Therefore, in recent years, advocates of wilderness areas such as the Sierra Club, Izaak Walton League of America, and the Wilderness Society, have waged a constant fight to retain the San Jacinto Wild Area. They believe that if the Legislature were to consider the proposal now, the wilderness would be safe.

Behind the fight for wild lands is the belief that they are necessary in modern living. Typical of this attitude is the by-laws of the Wilderness Society which states in part — "... We believe that wilderness is a valuable natural resource that belongs to the people and that its preservation — for educational, scientific, and recreational use — is part of our civilized culture."

Modern outdoor enthusiasts agree with the pioneer

wilderness defender, John Muir, when he wrote "... that wildness is a necessity; and that mountain parks, and reservations are useful not only as fountains of timber and irrigating rivers, but as fountains of life."

The modern scheme for living seems to call for the kind of outdoors environment that America's pioneers sought to tame. For both mental and physical health a touch of the rugged outdoors is considered essential by leading welfare authorities.

Wilderness areas cannot be defended easily, since they do not have the popular appeal that resorts have. Just as with the fine painting or good book, appreciation is limited. The wilderness calls for physical effort and a desire to find peace and quiet.

There is a place for resorts, but conservationists believe that the San Jacinto Wild Area should not be sacrificed to commercialism. In time, these wild lands can prove to be of greater value to the country than another resort.

WELDON F. HEALD

PARKS, PLANS, AND PEOPLE

THE CASE FOR CALIFORNIA'S STATE PARKS

ON SEPTEMBER 24, 1954 California became richer by some \$66,000,000. At a simple ceremony in Sacramento two checks totaling this amount were turned over to the state by the United States Treasury under the terms of the Submerged Lands Act. All this sudden wealth represents accrued gas and oil royalties from state-owned offshore lands in the three-mile marginal belt.

Portions of these monies were originally earmarked for state parks by the State Legislature when in 1938 a law became effective designating 30 per cent of these funds for state parks. In 1943 the law was amended to raise the quota of the State Park System to 70 per cent, after a relatively small amount each year is removed for support of the State Lands Commission and \$150,000 for the Veterans Dependents Educational Fund. In 1947 the paramount rights of California and other states to their off-shore properties were disputed by the Federal Government. During this period of dispute the state parks borrowed from the General Fund. This was a period in which many phases of the program lagged and long-range commitments could not be decided until the controversy was settled.

It is unfortunate perhaps that the general public immediately became impressed with the announced \$66,000,000 without realizing that not all of it was going to parks. Actually, after deducting the debt owed the treasury by the State Park System, and then taking 70 per cent of the remainder, the total accrued to parks is but \$33,000,000.

Californians had expected this windfall, reduced though it is, and for several years have been planning how to spend it. An ambitious five-year program was drawn up and the people of California were confident that by 1960 they would be the proud owners of one of the most superb collections of scenic, historical and recreational areas anywhere in the world.

But that was before the money actually came in.

Now it appears that almost every other state-financed activity is in dire need of additional funds, and the struggle for the \$33,000,000 promises to be the Battle of the Century. For there is a catch to the law setting up the State Park Fund. Although it does provide that the gas and oil royalties be earmarked for park purposes, it also specifically states that each new Legislature must authorize the actual appropriations. This could result in hostile or indifferent legislatures starving the state parks into a progressive anemia while favored agencies thrived on special handouts. Thus, a brave and uniquely forward-looking project hangs in the balance.

So when the new State Legislature convenes in January 1955, Californians will be forced to decide what they meant when they enacted a law providing for a State Park Fund. Do they still want to preserve a portion of their magnificent natural and historical heritage for the benefit and enjoyment of this and future generations? Or would they now prefer to fritter the money away, a little here and a little there, on various state agencies that are supposedly financed

The wilderness values of wild mountains, not crowded through easy mechanized access, are San Jacinto's greatest contribution to recreational needs. (Val Samuelson)

by other funds? In these days of rising costs and booming population, the clamorous demands on the gas and oil royalties will be powerfully persuasive, and there is no doubt whatever that every one of them will represent a legitimate and genuinely pressing need. Therefore, it isn't a question of right versus wrong, selfishness versus unselfishness, or public versus private interests, but of where the money can be spent to the best advantage of the state in the long run.

But before deciding, the citizens of California should realize that the choice once made is irrevocable. Later will be too late. For never again will there be an opportunity to provide an adequate State Park System for the teeming millions of the future. So it is only good sense for Californians to know the facts about their state parks and monuments and the plans for their development and expansion. Only then can they make a wise decision.

Perhaps the most significant fact of all about California's state parks is the people's increasing appreciation of them and their wide popularity. They have become an accepted and important phase of present-day living. Counting the estimates from the heavily used southern California beaches, 42,000,000 visitor-days were recorded for the State Parks last year, a figure rivaling that for visitors to the national parks and monuments throughout the country.

But all the statistics about California's state parks are impressive. Today they consist of 136 areas comprising 600,000 acres and valued at over \$42,000,000. They include 106 miles of Pacific beaches and shoreline, 71,000 acres of Coast redwoods, and Sierra big trees, as well as mountain forests and lakes, colorful desert areas, palm-shaded oases, riverside beauty spots, and historical landmarks of California's Spanish and pioneer days.

In this vast publicly owned domain, open to all, are more than 6,000 camping and picnicking sites, and facilities for horseback riding, hiking, fresh and salt-water fishing, swimming, boating, winter sports, and almost every other kind of outdoor recreation. Some of the areas also have lodges, cabins, stores, and other concessions for tourists and vacationists.

Fortunately, Californians have long recognized the inestimable value of their unmatched scenic, geological, botanical and zoological resources and began early to preserve some outstanding examples, intact and unspoiled, within state reservations. In fact, California has the distinction of acquiring the nation's first state park ninety years ago. In 1865 an Act of Congress deeded world-famed Yosemite Valley and Mariposa Grove of big trees to the state, but they were returned to the Federal Government in 1905 as a part of Yosemite National Park. Meanwhile, however, the state park movement received impetus in another direction. Extensive lumbering in the Santa Cruz Mountains, south of San Francisco, sparked a conservation campaign to

save some of the best stands of giant Coast redwoods from ax and saw. Through the efforts of the Sempervirens Club, the Sierra Club, and others, the State Legislature passed a special act in 1901. This act set aside an area of virgin forest in the Santa Cruz Mountains as the California State Redwood Park. It is now the 10,000-acre Big Basin Redwoods State Park, the oldest as well as one of the finest in the entire system.

Attention next turned to the tremendous redwood forests of California's fog-bound north coast and the Save-the-Redwoods League was formed in 1918 for the purpose of preserving outstanding groves. Now numbering 16,000 members throughout the United States, this organization has proved to be one of the most successful in the history of conservation. Receiving the full cooperation of the redwood lumber companies, it has rescued 55,000 acres of the world's mightiest trees at a cost of \$10,000,000 and deeded them to the state in a series of parks along the Redwood Highway. This has resulted in what is probably the most scenic forest drive on earth. The League is now engaged in saving some of the finest remaining groves of redwoods and has recently added the preservation of the Sierra big trees to its program.

A movement for unified control of state parks, backed by many organizations interested in conservation, led to the passage of three bills in 1927. These created a State Park Commission, called for a two-year survey of possible park sites, and a \$6,000,000 bond issue for a matching fund to acquire parks recommended by the survey. The bonds were approved by California voters a year later and the Division of Beaches and Parks was set up in the Department of Natural Resources as the administrative unit for all parks, beaches, and monuments. Developments for public use were made, as a part of the park program, by the Civilian Conservation Corps and other Federal Aid agencies, beginning in 1933.

By 1940 these funds had been expended or committed. But the state was becoming thoroughly park conscious and public demand for more parks resulted in 1945 in an appropriation on the matching principle of \$10,000,000 for the acquisition of beaches and \$5,000,000 for other parks. This money is still being used to augment the system by establishing parks where badly needed. Also, in 1945, a bill was passed authorizing the construction of a 3,000-mile Riding and Hiking Trail loop the full length of the state, as a part of the State Park System. Five hundred miles of this trail have been built to date.

But in spite of the rapid growth of California's state parks, the constantly increasing number of visitors has taxed existing facilities to the utmost. Anticipating the enormous future use of such recreational areas, the Legislature passed the bill directing that 70 per cent of the accrued gas and oil royalties be used in a fund to round out and develop the State Park System; and



'An irreplaceable natural resource that the people of California can enjoy now and forever'—the need for the outdoors grows with our expanding population.

The swimming beach at D. L. Bliss State Park on the shore of beautiful Lake Tahoe provides recreation for thousands of visitors each year. (California Division of Beaches and Parks)

the Division of Beaches and Parks presented a five-year plan in 1952 involving the expenditure of some \$60,000,000.


Among the projects outlined in this gigantic program are additional beaches and interior parks, expanded camping and picnicking facilities and other recreational developments; a system of highway waysides; furtherance of the Riding and Hiking Trail; restoration of historic buildings; and preservation of Coast redwoods and Sierra big trees. These plans call for spending over \$12,000,000 a year between 1955 and 1960 to complete the acquisition of twenty-five areas and the addition of at least fifteen new units. This would make a total of 167 areas in the California State Park System at the end of the five-year period.

Although recreational and scenic parks receive the greater emphasis in the program, several additional historical monuments are considered, and the Division of Beaches and Parks, in cooperation with the Historic Landmarks Advisory Committee, appointed by the Governor, has recently undertaken a project to register and mark places of historical interest. These markers are being set along the roadsides and some of them are maintained by the California Division of Highways.

The 1952 program is now being revised and brought up to date. It will be presented to the 1955 Legislature as justification for the statutory allocation of 70 per cent of the gas and oil royalties to the State Park

System. But other worthy contenders for the money will be numerous and will put in convincing arguments that they are more important to the people. Particularly prominent will be the schools, as California's educational needs are always severe and urgent. The whole \$33,000,000 would be a drop in the bucket if applied to this purpose, however, and the schools already have other sources of revenue.

The State parks and monuments are undoubtedly one of California's greatest assets and will be of ever-increasing value in the future if developed and expanded to their fullest extent. The oil and gas royalties are derived from the use of an irreplaceable natural resource, so it would seem just and fitting that they should be spent to conserve another irreplaceable natural resource that the people of California can enjoy now and forever. The dynamic and forward-looking policies of the State Park Commission and the Division of Beaches and Parks are actually due to the interest and pride Californians themselves have taken in their State Park System—every dollar of the millions expended by the state must be matched by counties, municipalities, organizations and/or individuals. So the California State Parks are, in fact, a cooperative venture to save some of the state's choicest places for the use and benefit of all. There can be no finer example of practical democracy than that.

The case for California's State Parks now rests. The verdict is up to the people of California. 

EDWARD S. ROSS *EDGE OF THE AMAZON*

LIKE MOST HUNTERS, a nature photographer sooner or later begins to muse about richer hunting grounds in far off lands. While the rifle-bearing hunter finds the acme of adventure in the game country of East Africa, a nature photographer who hunts insects wants to go to the Amazonian forests. Here, amongst a fabulous array of insects, large and small, are to be found some of the most bizarre and, at the same time, most beautiful insects in the world. A good collection of candid pictures of such superlative subjects should have limitless value in teaching, research, and the entertainment of nature lovers. An arsenal of

conditions required for the work. Here the insect fauna is perhaps even richer than on the Amazonian plain itself, in fact too rich to be merely photographed and not collected. Mr. Evert I. Schlinger, graduate student in entomology at the University of California at Davis, was therefore engaged as collector for the Academy's Department of Entomology. Mrs. Ross completed our party of three in her role of collector and general assistant.

Our gear was neatly stowed in a recently purchased, bright orange, half-ton panel truck, which we promptly named "La Calabasa" — the pumpkin. This truck had just completed four hard years delivering the *San Francisco Chronicle* from corner to corner and deserved a more exciting if not less dangerous, adventure.

The morning of August 10 saw my wife and me aboard ship with "La Calabasa" on a forward deck, sliding out under the fog-shrouded Golden Gate Bridge. Our Grace Line freighter, the *Santa Elisa*, was to carry us to Callao, Peru, where the overland journey to Tingo Maria could begin.

Mr. Schlinger, who traveled by plane, met us on the guano-scented Callao docks on September 7 and gave us moral support in a five-day delay passing through customs. As soon as possible we left the foggy desert coast and climbed up the winding Río Rimac gorge to the crest of the Andes. Here, surrounded by jagged, glacier-covered peaks, we reached an altitude of 16,000 feet on what I am told is the highest road in the world. We camped for the night at 15,000 feet on a ridge east of Laguna Junín and nearly froze to death in a blizzard that coated our tent with ice. Next day we passed the bleak mining town of Cerro de Pasco and eastward saw the first rivulets of the Huallaga, one of the most remote tributary rivers of the Amazon.

We made the hotel at Huánuco that night after passing down through spectacular gorges. We were surprised to find the agricultural valley bordered by parched, cactus-covered slopes. The rain-bearing Amazonian clouds are seasonally blocked here by the high Carpish mountains which we climbed the next day and crossed at 10,000 feet. The crest and eastern slopes of the range looked like textbook depictions of scenes in the carboniferous period. We were in a true cloud forest with trees festooned with moss, giant tree ferns, bamboo, fuchsias, and club mosses all clumped in a great dripping tangle that would delight a botanist.

Our narrow, one-way road zig-zagged down and down into warmer tropical zones. Accordingly, the population became denser and showed its indelible mark on the steep canyon sides. Here, commonly on sixty-degree slopes, the natives have slashed and burned precarious, temporary fields for such crops as



Anxious moment at Callao — an Academy expedition hangs in the balance. Going over the side is not only our transportation but all our gear.

the right tools — modern single-lens reflex cameras and electronic flash equipment was mine to make such pictures and I was ready and eager to try my hand at the job — one which, to my knowledge, had not been attempted before.

Early in 1954 a fellowship for such a project was granted me by the John Simon Guggenheim Foundation and definite preparations for the expedition began. The field work would require an intimate, repeated contact with a single representative Amazonian environment rather than the usual hop, skip, and jump movement of so many expeditions. We needed a good comfortable base of operation and Tingo Maria, a town tucked in the eastern Andean ranges of Peru, 550 kilometers by road northeast of Lima, was selected. Located on the Río Huallaga at an altitude of 2,200 feet, surrounded by beautiful montane forest, and the site of an experiment station for the study of tropical agriculture as well, Tingo Maria offered just the con-

Experiment station lands and buildings are in the foreground. The tourist hotel is in the forest (middle of the picture). The Carpish Mountains, as usual, are hidden in clouds far above the last visible range. The town is to the right.

Y
Pointing down at last on the top of the grade between Lima and Oroya — altitude 16,000 feet, truck doing fine, passengers a bit breathless. Snows feed rivulets forming part of the watershed of the Río Montaro, which in turn contributes to the Amazon.

coffee, bananas, cocoa and corn. Below these unfortunate scars, the rivers run brown with mud and the road is endangered by frequent land slides. One wonders why this abuse of the watershed is not stopped and the population moved to the vast undeveloped flat land on Peru's Amazonian plain. I fear, however, that this would be like trying to move our own hill-billy farmers to the plains of Kansas.

Below this despoiled zone we were relieved to pass into lush canyon forests and soon found ourselves again along the Río Huallaga, now much larger, which we had left near Huánuco. Later, we were chagrined to learn that our tedious diversion over the high Carpish Range, rather than an easy continuance down the river valley, was owing to the pressure of a certain politician to have the road pass by land he owned in the Carpish. This chance to cross ordinarily inaccessible cloud forests by road is a treat to the naturalist but a daily curse to truck drivers and a wear on their precious vehicles.

At Tingo María the valley broadened a bit and everywhere we saw the favorable influence of the experiment station in the character of the population, its appearance, and the methods of agriculture. Approximately 6,000 persons live in the valley and represent a mixture of *altiplano* Indian peons and colonists of many national origins. No trace is to be found of the original Indians, the Cholon. An airport provides plane service to Lima and it is possible for a tourist to spend pleasant days in this tropical Shangri-La with

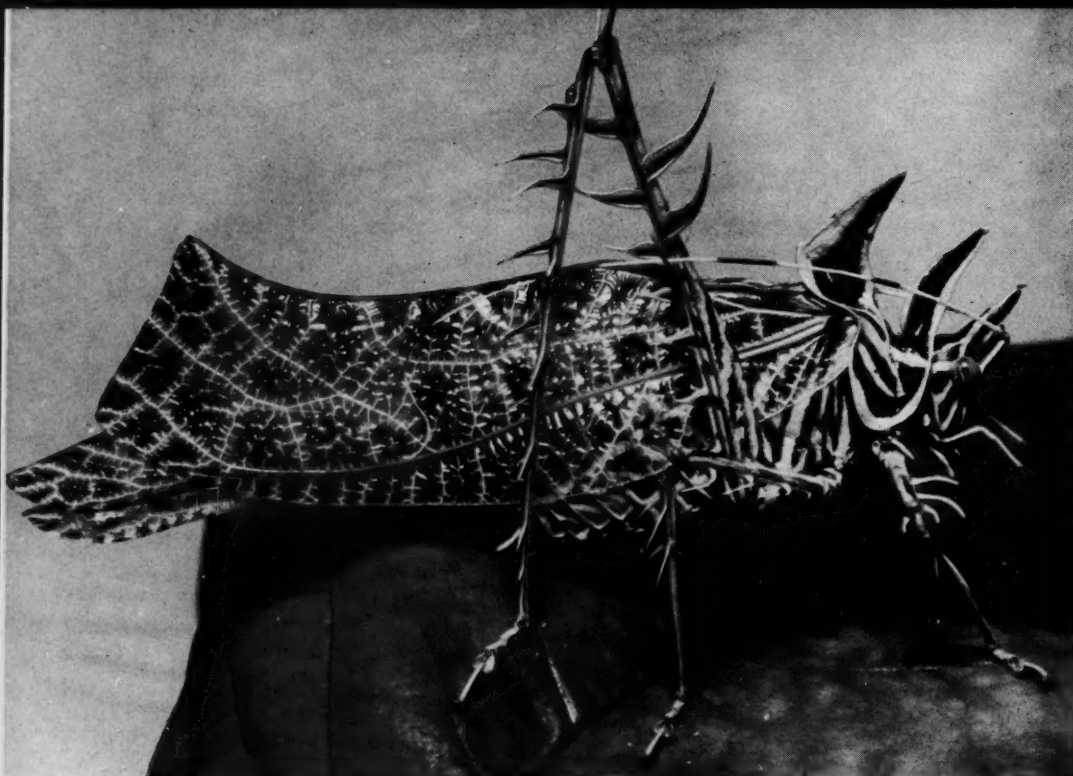


almost all of the comforts of home while residing at the tourist hotel.

We were welcomed at the experiment station and promptly given a fine laboratory room complete with electricity and a drying cabinet for our specimens. The latter insures mold-free specimens enhanced by good preservation of the colors so often lost if the drying takes place too slowly. In an adjacent building I have the use of a well-equipped photographic dark room which has made possible the developing and printing of the illustrations for this report.

To further add to our comfort, we were also given the use of an unoccupied staff cottage set in a beautiful tropical garden. Our neighbors include the Peruvian director of the station and two American experts from the Office of Foreign Agricultural Research. One





This photogenic katydid is one of only two of its kind we have seen among the more than 100,000 insects we have collected so far on this Peruvian expedition. There must be more than fifty different kinds of katydids in the Tingo Maria neighborhood. Some resemble leaves, others twigs, bark, lichens, and even wasps. This one must seek protection by dazzling its enemies with its spiny form brilliantly colored green, yellow, and white. It was attracted to the porch light of our house. (Actual length, 3 inches).

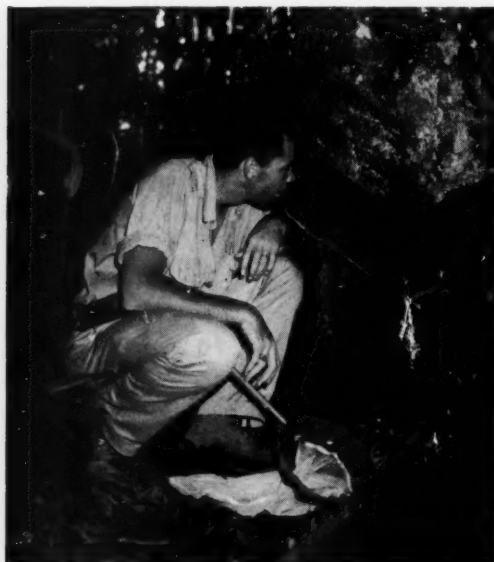
of these is in charge of experiments in rubber production which not only will be a great aid to the economy of Peru but also help provide a safe living stockpile of natural rubber for the free world.

We radiate each day from this fine base into many types of jungle insect hunting grounds — river banks, beautiful clear streams, deep primary forest, and mysterious caves. We never cease to marvel at the beauties of the vegetation, the sudden encounters with strange birds, such as the toucans, and parrots — especially the macaws. Occasionally we hear the crash of monkeys in

the branches overhead. Snakes are the least of our concern for, although dangerous kinds do occur here, we have seen fewer snakes in three months of daily hunting than we might have in one day near home.

Our only discomfort comes from chigger bites and sporadic attacks of black flies. Mosquitos, strangely, are practically nil, day or night.

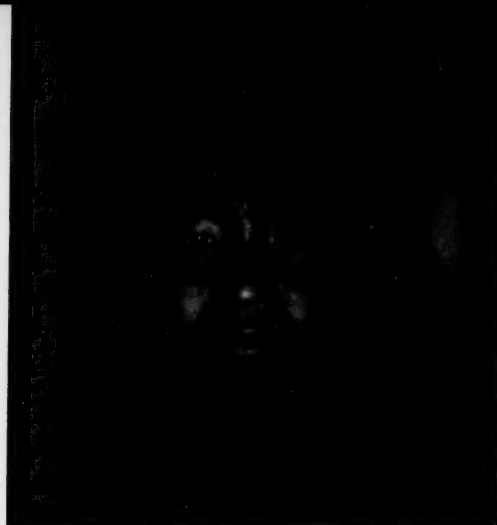
In three months I have taken more than 5,000 insect pictures, most of which are in color. Mr. Schlinger, with some help from the rest of us, has bagged more than 100,000 insect specimens of many species, a



▲ The expedition's insect collector, Evert I. Schlinger, examines the tapping of a large wild rubber tree in the dense forest west of Pucallpa, Peru.



← A large close world of la



Red-painted Campa Indian woman from the Río Apurimac. She and her husband came down by balsa raft with one of the Linguistic Society missionaries to act as informants on their native dialect. These evangelists try to learn the languages of all the remote tribes, the better to carry on their missionary work.



large percentage of which are not available for reference in any American museum. Such specimens are comparable to books in a library. Students now and in the future can gain much information by referring to them and can better understand the classification of insects that we must deal with at home. San Francisco can certainly be proud to have this addition to its cultural and research resources.

Aside from the value of the photographs in popularizing science, there is much to be gained from research study of such pictures — for example, to interpret the meaning of insect coloration, behavior, and posture. So many of our theories on such subjects are based only on written field notes or recollection. The project will also provide a vast stock of illustrations for use in future text books and add information on the problems involved in photography in a tropical environment.

Besides our forays in the Tingo María area, we have occasionally driven across the last of the eastern Andean ranges, the Cordillera Azul, through a mysterious Yosemite-like gorge — the Boquerón de Padre Abad — and out onto the Amazonian plain. Here, rains permitting, one can drive far out to the town of Pucallpa on the Río Ucayali. This point is little more than 60 airline miles from the Brazilian border. Trucks return to Lima over this road with loads of lumber and agricultural products.

It was also our intention to fly up to Iquitos in northeastern Peru after first stopping over at Yurimaguas on the lower Huallaga. Our baggage was aboard the plane, a former B-25 bomber, but at the last minute we didn't go because the flight plan was changed to a town short of our destination. It's a good thing we didn't change our plans to fit this because the plane,



with eight Peruvian passengers, disappeared into a storm and hasn't yet been located. A plane that crashes into forest, such as this, disappears as effectively as if it had plunged into the sea.

During mid-December, and with much reluctance, we will leave Tingo María and transfer our work to a comparable zone on the Río Perené. After a few days in this more southerly location, we will return to Lima, ship our valuable collections, and outfit for our trip north.

We plan to drive up the desert coast of Peru, ferry from Puerto Pizarro (near Tumbes) to Guayaquil to do some general field work in Ecuador's diverse life zones. Then we will cross into Colombia, cut down from Bogotá to Villavicencio at the eastern base of the Andes and later work here and there in the coffee zone of northern Colombia. Finally, we will drop down to wet Buenaventura, Colombia's important Pacific port, to embark on our sea voyage home.

◀ A great experience for a specialist — the discovery of my first colony of *Clothoda*, the largest, most primitive web-spinner (order Embioptera) known to science. This species, or its close relative (it may prove to be new), is known from only two specimens collected on the lower Amazon by Bates in 1848. I have since secured hundreds — enough for all the museums of the world. These insects live in silken galleries spun with their front feet.

▲ (Right, upper) One of the many strange treehoppers in the tropical world, a quarter-inch of lacy intricacy. (Lower) We call this $\frac{3}{16}$ -inch treehopper the "helicopter bug."

Californians, four footed and flippered

Mammals of California and its Coastal Waters. By Lloyd Glenn Ingles. Stanford University Press. 1954. xiii + 396 pp., 46 halftone plates, 25 pictorial keys, 100 text figs. \$6.00.

There are at least 200 different species of mammals, native and introduced, in California and its salt waters, if we include some — grizzly bear, jaguar — recently exterminated, and man. Dr. Ingles' *Mammals of California* has since 1947 filled the need for a book useful to all people interested in animals in one way or another. Dr. Ingles might well have let his book go on into repeated printings or an occasional new revised edition, but obviously he is not that kind of author. He has instead come up with an essentially new and better book, with a wealth of new material in half again as many pages. His enjoyable descriptive text and excellent photographs remain. The keys to species — many readers sans biological training apparently still find such keys mysterious — have been replaced by careful halftone drawings with pointers to the recognition characters and color areas. Descriptive data and distribution notes appear on facing pages.

A chapter on "Mammals of Long Ago" has been added, and the "Why" of mammal study is explained as well as the "How." Various appended features include dental formulae of Californian land mammal genera, an "artificial generic key" to skulls, and an illustrated description of "scats" or droppings — all useful aids to identification. Added to the account of life zones and biotic communities is a "Brief Description of Plant Communities in California," and the section on marine mammals has been greatly enlarged. The excellent whole, it's a distinct pleasure to report, is dedicated to the keen young future naturalist pictured on page 5 of this issue: "John Allison Ingles, age 7, indomitable."

DISCOVERY IN BOOKS

How to know the Amazon

Exploration of the Valley of the Amazon. By William Lewis Herndon. McGraw-Hill Book Company, Inc., New York. 1952. xxviii + 201 pp., illus., endpaper map. \$3.75.

My Amazon Adventure. By Sebastian Snow. Crown Publishers, New York. (1954.) 224 pp., 21 photos. \$3.75.

The Amazing Amazon. By Willard Price. The John Day Company, New York. 1952. 306 pp., endpaper map. \$4.

Amazon Town: A Study of Man in the Tropics. By Charles Wagley. The Macmillan Company, New York. 1953. xi + 305 pp., illus. \$5.00.

The Amazon is more than a river. It is a region, a very large part of a continent. It is a goal of explorers' dreams, a naturalists' happy hunting ground. It is a green hell to some, to others the last best hope for man's overcrowded future. Whatever the facts or fancies underlying the converse despair and hopes invested in it, certain things are generally admitted of the Valley of the Amazon. It is by far the largest of the earth's three great areas of tropical rain forest; it probably contains more still unknown species of animal life (insects and lower invertebrates) than any other por-

tionate part of the globe; it has the most land untouched by explorers outside the polar regions. And whereas Antarctica calls for large financial and logistical effort, the small expedition — even the lone explorer — can still report major geographic, anthropological, and biotic discoveries from the vast drainage basin of the Amazon and its countless tributaries. The California Academy of Sciences has such an expedition on the edge of the Amazon as we go to press.

Like the river itself, the stream of Amazon writings is ceaseless. A book that belongs with Bates, Wallace, Spruce, and Agassiz, though not the work of a naturalist, has lately been recovered from a century of oblivion by the writer and historian, Hamilton Basso. It is William Lewis Herndon's *Exploration of the Valley of the Amazon*. A navy lieutenant of the period of American world exploration distinguished by Wilkes, Perry, and Stephens, Herndon was sent by the U. S. Government on "an important and delicate" mission to "explore the Amazon from its source to its mouth" and to report on the condition of the entire valley with respect to "the navigability of its streams" and "its capacities for cultivation and . . . character and extent of its undeveloped commercial resources." With a small party Herndon went down the Huallaga, one of the "source" tributaries, and traversed the entire Amazon to Pará, using native vessels and crews. He was the first American to accomplish the feat. His account, which Editor Basso puts second only to John Lloyd Stephens' *Incidents of Mayan exploration in American travel writing*, is not remarkable for the dangers described and difficulties surmounted but rather for the vivid reporting of nature and people in a world all but lost in the limbo of a static colonialism. The book is to be commended both for its own sake just as good reading and for background to later accounts of the Amazon. (Herndon put in at our Dr. Ross' base, Tingo María.)

A current one is *My Amazon Adventure* — it leaves us bewildered between the apparently senseless foolhardiness of the author's exploit and his sheer guts in carrying it out. Twenty-one year old Sebastian Snow could be called a magnificent fool, or a shining example of the exploring Englishman. Convinced that the Marañón, though not the longest, is the main source-confluent of the upper Amazon (and it is generally conceded to be), Snow set out to prove it by following the Marañón-Amazon from the Andean lake where it rises, down through the wild gorges where it divides the cordilleras, over untraversed rapids to its breakthrough onto the Amazonian plain, and on to the Atlantic. He conceived the idea while measuring the source lake and glaciers in the employ of one John Brown. He set out with little preparation, equipment, money, or Spanish. He traveled virtually as a hitch-hiker with a pack on his back, though paying for Indian food, lodging, porters, mules, and canoe men when he could get them — he had slender funds. He suffered from cold, heat, dysentery, malaria, and foot trouble. He ran rapids considered impassable. He commanded help along the way mainly by his sheer force of character — incredulous natives had to admire the crazy *Inglés*. The account is alternately excruciating like one of those nightmares of getting nowhere through a morass of assorted hindrances, and sparkling with Snow's continual return to humor over his self-made fix and interest in his surroundings and their inhabitants. We learn that the valley of the Marañón is quite arid, for instance, and we become

intimate with the Indians who somehow live there. Snow quit his balsa raft at Iquitos and shipped to Pará, so this is mainly the story of the Marañón — and that gives it unique value in Amazon literature.

Leaving the explorers, we note two books that show the Amazon in terms of human life. **The Amazing Amazon** is the sort of all-over pattern of geography, history, personalities, customs, incidents of travel (by canoe, plané, river steamer), nature lore, and speculation about future possibilities that one expects from that veteran reporter-traveler Willard Price. True, he is prone to take much on faith — if anacondas *do* reach 56 feet Ditmars should have known it — but he is well worth reading for the wealth of information he packs into his ably written pages. Because he comes out in the end so strongly on the side of the more optimistic estimators of the Amazon's capacity to support an enormous future population ("this virgin territory," he says, "... may some day come to be the chief granary of a plundered planet"), he should be weighed against soberer seers.

A Columbia University anthropologist, Charles Wagley, with many years of Brazilian field work behind him, provides us with an intensive study of Amazon life as it exists and has existed for many generations. His **Amazon Town** is an absorbing human document, in which he takes apart a typical small Lower Amazon community to see what makes it tick. The microcosm provides the clues to the general "backwardness" of the Amazonian region: resistance to change is built into a tradition-bound *social* fabric, which must be altered with extreme patience and care lest it fall apart, with the loss of valuable elements. Development is bound to come, of course, to "the most extensive sparsely inhabited area of the world." Professor Wagley hopes "that a new Amazon culture will be formed combining the productive powers of modern technology and science and the efficiency of modern industry with the many positive values of the present way of life." Those who envisage rapid and sweeping change must reckon with ways of nature and of man, both of which are well established in the Valley of the Amazon.

Journey to the Far Amazon: An Expedition Into Unknown Territory. By Alain Gheerbrant. Translated by Edward Fitzgerald. Simon and Schuster, New York. 1954. vii + 353 pp., 34 photographs, endpaper and text maps. \$5.00.

This handsome volume contains one of the most genuinely thrilling stories of exploration ever to come our way. Three Frenchmen and a Colombian, all under 30, set out to penetrate the northern rim of the Amazon basin by way of the Orinoco and Ventuari rivers, to force the uncrossed Sierra Parima, a part of the Orinoco-Amazon divide, and pioneer a new route south to the Amazon. They had a definite and scientifically sound purpose: to visit, unarmed, wild Indian tribes, win their friendship by goodwill and kindness, and bring back the story of their life, recordings of their music and speech, and collections of their artifacts, for the anthropological record. They overcame dangers and difficulties that would have put most men in retreat. How they found the Maquiritares, and with their help as porters and scouts, the Guaharibos, the mysterious hillmen believed certain to kill a white man on sight—how they crossed the Parima weak from hunger and sickness—how they nearly lost everything and their lives too, going

down-river into Brazil — these are the physical details of their astonishing performance, the telling of which alone would have made the book great. But there is something not quite definable which sets this one apart. Perhaps it is the way Gheerbrant, by nature both artist and philosopher, has spun the mood of danger into an all but palpable thread marking their course into the unknown. And by the unknown we mean not only strange rivers and ranges but also the mind of men for whom the known world is their own part of the forest. Gheerbrant's attempt to reach that mind was the crux of the whole effort. What was it that most nearly filled "the chasm which centuries of our evolution had dug between us"? The music of Mozart.

Trees and men in the tropics

The Tropical Rain Forest: An Ecological Study. By P. W. Richards. Cambridge University Press, Cambridge. 1952. xviii + 450 pp., 26 photos, 43 text figs. \$12.50.

Any person asked what the word Amazon, speaking geographically, connotes besides a river, would undoubtedly answer "forest" (or "jungle"), perhaps qualified by "endless" or "world's biggest." The word Congo might elicit the same, without reference to size. Now if the question were put: "Where are the world's great rain-forest formations?" the answer *might* come: "In the Amazon, the Congo, and —" it should be safe to guess few would include the East Indies. In any case, it is well worth while for everyone to know what the rain forests are, as well as where. A professor of botany in University College of North Wales, P. W. Richards has, with *The Tropical Rain Forest*, provided the definitive answer in a form generously designed to be enjoyed and understood by the interested layman (such as the reviewer) and to become, as well, the indispensable source book for botanist, ecologist, geographer, or anyone professionally in need of fundamental information. (For instance, the Academy's curator of insects, Dr. E. S. Ross, was seen intently studying the book during the weeks preceding his current expedition to the Upper Amazon.)

The titles of the book's main divisions — Structure and Physiognomy, The Environment, Floristic Composition of Climax Communities, Primary Successions, Tropical Rain Forest under Limiting Conditions — may scare off some readers, and the author does not mince his scientific words. But he takes pains to be clear; one need only bear in mind the proper aim of so-called scientific terminology — to be precise. Knowledge of a great thing is worth some effort.

The last part, Man and the Tropical Rain Forest, should be carefully studied by all persons in any way interested in the problem of "developing" the tropical lands for greater human use. Richards' "Postscript," The Future of the Tropical Rain Forest, by answering the question "what consequences are likely to follow" man's destruction of these very ancient and unique major features of the earth, serves to plead for saving at last representative parts. Consider this: "The most far-reaching (consequence of their loss) is the probable effect on the course of plant evolution in the world as a whole." And: "The tropical forest is a field for biological research which has no substitute and in it must lie the key to a vast amount of scientific knowledge which could not be obtained elsewhere." Need more be said? Once gone, they will never come back. D.C.K.

Various Africas

Sahara. By René Lecler. Hanover House, Garden City, New York. 1954. 280 pp., 8 photos. \$3.95.

Mountains in the Desert. By Louis Carl and Joseph Petit. Doubleday & Company, Inc., Garden City, New York. 1954. 318 pp., 30 photos. \$3.95.

"I thought I knew the Sahara," General Laperrine, who had conquered it for France, said, dying somewhere in the emptiness of it after his crash on the first flight across from Algiers to Dakar. To know the Sahara was long one of the most stubbornly sought, and stubbornly resistant, goals of European explorers. Timbuktu became a symbol of the remote, the fabulous, unknown. It still is, though the reality, when it yielded at last to René Caillié in 1848, was as disappointing a "mass of ill-looking houses built of earth" as any one of the mythical Seven Cities of Cibola was to the conquistadores, materializing as an impoverished pueblo in our own desert.

Lecler's *Sahara* is a history of exploration and military conquest. The great desert's geologic, climatic, and human resistance to both was the more challenging because of its doorstep nearness to Europe. It wrung the utmost in courage and determination, and frequently the life, from the men — often lone men — who attempted it. Their stories are epic. Their names, besides Caillié, are Duveyrier, Barth, Rohlf, Hornemann, Denham, Clapperton, Ritchie, Laing, Richardson, Nachtigal, Lenz — these are not all. The subsequent military period brings in the tragic figure of Colonel Flatters, his mission to the Tuareg in their Hoggar mountain fastness, and "the worst massacre of modern Saharan history," in 1880. The telling of this is masterful. Then came Major Lamy, Father de Foucauld, saint and martyr, and the great Laperrine. Between world wars there was development, consolidation; then in 1940 the world won hope in despair by the birth of Free France at Fort Lamy in the Sudan. Now the charted Sahara is at peace. Huge buses cross the Erg. Tourists visit the Tuareg and scientists examine the Hoggar. "Roses bloom in the gardens of Tamanrasset." . . .

The idea is perhaps still widespread that the Sahara is mainly a vast expanse of sand dunes with an occasional oasis of palm trees. A surprise it may be that there are two mountain massifs in its heart. In 1869 Gustav Nachtigal became the first European to enter the Tibesti, a weird jumble of volcanic rock rising to 11,200 feet on the border between Libya and French Equatorial Africa. The world heard of the Tibesti again, when on January 6, 1941, an Eighth Army patrol from Cairo met a Free French patrol at a well in these mountains — an historic contact. To the westward in southern Algeria the Ahaggar, or Hoggar, Mountains rise to nearly 10,000 feet. This ancient stronghold of the Tuareg tribesmen was for decades the chief block to French control of the Central Sahara, a dream not fulfilled until the early 1920's. Now the granitic Tefedest massif of the Ahaggar is yielding treasures to science.

Louis Carl and Joseph Petit are two young French archeologists. Knowing that, on a chance tip, the French Mountaineering Mission of 1935 had discovered "three amazing prehistoric sites" at some 6,000 feet in the Tefedest, Carl and Petit went there in 1949-50, with a photographer, Bourdelon, and an artist, Guérard, "to reproduce (the fres-

coes discovered by our predecessors) one by one as faithfully as possible, using suitable materials and methods," and "to continue prospecting the Tefedest massif, in the hope of new discoveries." *Mountains in the Desert* is their story. The essentials of good exploring literature are here in high degree: an adventure narrative complete with the suspense of discovery and some danger, and a lively introduction to a part of the world hitherto unknown to most readers. The Tuareg guide, the cook, and the Negro servant boy become very real personalities. So do the camels. The inter-dependence of all — men and beasts — in the attack on the unknown, becomes the crux of success, especially on that tortured return to Tamanrasset. As to the scientific outcome, a final chapter attempts to place these newly discovered Upper Mertoitek paintings and carvings in their context of Euro-African cave art, so important as spoor on the track of ancient man. The book is an intense experience. The photographs are uncommonly fine. The two maps are a great help in understanding the progress of the story (the *Sahara* cries out for a map that isn't there).

Crossroads of the Mediterranean. By Hendrik de Leeuw. Hanover House, Garden City, New York. 1954. x + 244 pp., 25 photos, endpaper map. \$3.75.

Africa's Atlas Mountains thrust a pine-topped wall between the sparse northwestern Sahara and the teeming littoral of the western Mediterranean. Of coastal Morocco, Algeria, and Tunisia, "crossroads of the Mediterranean" is as true as it is trite. Here Phoenicians, Romans, Vandals, Arabs, Berbers, Jews, Europeans — and Americans — have fought for foothold through the centuries. Their bones enrich the soil; their blood enlivens as mixed a population as exists anywhere; their buildings — pre-Roman to modern American — encrust the scene with splendor and squalor.

Holland-born American professional globe-trotter, Hendrik de Leeuw has concocted of his visits to these parts a pungent potpourri of rubbernecking and romance. His casing of casbahs and listing of landmarks are saved from the superficiality of many tour-books by his sturdy sense of history and lively interest in people. Here is romance aplenty. We may trust, however, that in his accounts of the curious ways of some of our fellow men — in the area of the erotic, for instance, which he appears to find rather specially intriguing — Mr. de Leeuw is not romancing. Apart from the intrinsic interest of the manners and customs of other people where you find them (and there is the heart of the book), there is the obvious need to be up on such things in order to stay the courteous and so welcome guest among them. The chapters and notes on Arab, Moorish, and Berber "mores, manners, and morals" should be pasted in every tourist's topee.

I Drank the Zambezi. By Arthur Loveridge. Harper & Brothers, New York. 1953. xiv + 296 pp., 30 photos, endpaper map. \$4.00.

In order to see an Africa that is slowly dying, one must look through the eyes of a naturalist. For many centuries grazing and primitive agriculture have contributed to erosion, a quiet, little here-little there destruction of the land, a hoof, hand, and mouth attrition by multiplying men and their herds. Nature held her own — man was part of her. Then the European came, saw, marveled, took, and destroyed. He is still at it, with increasing tempo. He guts

mountains for gold, diamonds, uranium, copper. He strangles rivers for power. He bulldozes and burns the bush — for peanuts, or to control the tsetse, destroying the most magnificent fauna the world has ever seen in the process. Natural Africa is going to limbo on greased skids.

The naturalist must hurry, Arthur Loveridge, curator of reptiles and amphibians at Harvard's Museum of Comparative Zoology, realized, and went in 1948 to Mozambique and Nyasaland "to catch a last glimpse" of wildlife that is going for good with the forests. *I Drank the Zambezi* recounts the adventures of the author, his wife, and her sister in their accomplishment, during nine months, of increasing "Nyasaland's known fauna by 13 kinds of frogs, 16 of lizards, 5 species of snakes, and 12 of mammals." Along with the intimate picture of naturalists at work — always with the indispensable help of native "boys" — we are given glimpses of a land of rich verdure and magnificent views of and from steep-sided mountains with their attendant river gorges — the edge of Africa's great plateau. And there is the ever present feeling that much of this will be gone before it has even become known. Indeed the naturalist must hurry!

Hunter's Choice: True Stories of African Adventure. By Alexander Lake. Doubleday & Company, Inc., Garden City, New York. 1954. 254 pp., endpaper photos. \$3.50.

The Africa of the white hunter and big game safaris gave the Academy its show-window exhibits of African Hall. That Africa has produced some of the most thrilling footage ever filmed, and a literature all its own which includes Akeley as well as some of the tallest tales ever told.

Alexander Lake, American, missionary's son, became one of Africa's leading professional hunters. Years of veldt and jungle have made him wise in the ways of animals — and hunters. And they have given him a fund of adventure stories, some of them exceedingly funny. True stories, the publishers say, and the statement is not questioned here. Lake's yarns are so good, and so well told, they could be anybody's choice for topnotch adventure reading — nor are they, in the main, stock safari tales. The villains are not rogue elephants, not man-killing lions. They are men. The heroes, too, are men — often, in a quite matter-of-fact sort of way, the narrator, but also a big, kind Armenian-Greek named George Vossos, or the Zulu, Ubusuku, who

killed crocodiles and elephants with a hand-ax and wooden spear. Top thrillers, perhaps, are the stories involving one who carried emeralds to King John of Portugal, and some who carried narcotics to the Mau Mau and murdered an aged ivory hunter. The fortuitous Lone Ranger—Mr. Lake.

Hunter's Choice has much animal lore and natural history woven in, and much that would be useful to anyone contemplating a trip into the bush for any purpose. There are, for instance, some mouth-watering game recipes. You will hope the stories are all really true, but you will in any case enjoy them hugely just as well told stories.

BIBLIO MISCELLANY

Lion tracks and tracking lions

A Field Guide to Animal Tracks. By Olaus J. Murie. Houghton Mifflin Co., Boston. 1954. xxii + 374 pp. Over 1000 ink sketches. \$3.75.

With keys, descriptions, and copious illustrations Dr. Murie takes us afield to explore and interpret the signs left by animals in dust, mud, or snow. An expert naturalist and artist, the author has collected records of animal tracks and signs for over 30 years. The present volume, ninth in the Peterson field guide series, is the capstone of this extended undertaking. Clearly written, in a pleasing, informal style, the book is an excellent supplement to Burt and Grossenheider's *Field Guide to the Mammals* (Houghton Mifflin, 1952). A.S.L.

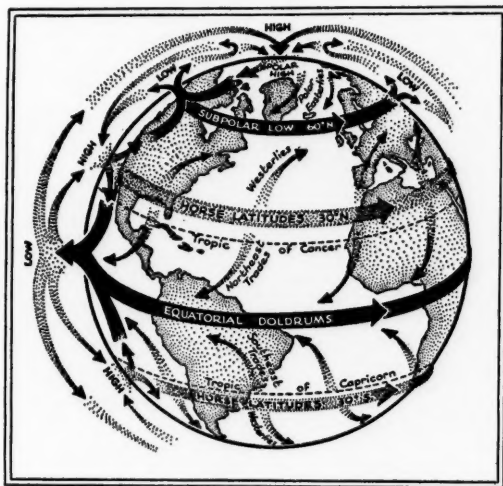
Cougar Killer. By Jay C. Bruce, Sr. Comet Press, New York. 1953. 172 pp., 9 photos. \$3.00.

Among the old time lion hunters, Jay Bruce is as much of a legend in California as Ben Lilly was in Arizona. Raised in the mountains near Sequoia National Park, Bruce grew up hunting to help his parents feed the family. From 1915 on he hunted mountain lions professionally, for bounty and on appointment with the California Fish and Game Commission. Bruce retired recently to a comfortable home in his native foothills. This book brings together his recollections of a lifetime spent in California back country. Mostly it is about lions and their pursuit with hounds, but throughout there is much authentic Californiana and some good natural history. A.S.L.

Life in the banana belt

Where Winter Never Comes: A Study of Man and Nature in the Tropics. By Marston Bates. Charles Scribner's Sons, New York. 1952. 310 pp., 29 text figs. \$3.50.

This issue having begun with remarks about and from Dr. Bates' provocative, thoroughly engaging, and often entertaining philosophy of life in the world's warm belt, it seems appropriate to conclude with a bit more. After looking for the lessons of man's history in the tropics, discussing clothing, diseases, food, resources, and such, he asks that we of the industrially dominant civilization not stake everything, in our rush to "develop" the tropics, on technology, but give the lead to science — it could save us many mistakes. Above all, let's not go to the tropics "weighed down with the burden of (our) own queer civilization." Rather, let us take with us "only what we need, go to the tropics as students, to learn what we can there of nature and man. For certainly there is much to learn." (See PRE-DISCOVERY.)



Schematic diagram of atmospheric circulation (after Osborn)—in other words, what makes the earth's climatic zones. Since it does not take into account topographic features of the land, it is highly idealized. From *Where Winter Never Comes*, courtesy of Scribner's.



He helps teachers in 54,000 classrooms

Radio was barely out of the earphone stage 26 years ago when a new program was beamed from a San Francisco studio. It featured a string trio and was based on the idea that good music, when clearly understood, could entertain and teach, too. Actually, only 72 Western schools had radio sets then, but with that performance the Standard School Broadcast was "on the air."



Today, when Conductor Carmen Dragon lifts his baton, it's "time for the Standard School Broadcast" in over 54,000 classrooms through the West, Alaska and Hawaii. Counting children, teachers and home listeners, the program reaches a weekly audience of nearly 1½ million. That string trio has grown to a symphonic orchestra with a dramatic cast, choral group and guest vocal and instrumental artists. Selections range the musical alphabet from symphony to jazz. Each year's course follows a carefully planned outline published in a manual sup-

plied to teachers by Standard to serve as a guide in blending music-enjoyment with subjects like art, literature, social studies. Now in its 27th year, the Standard School Broadcast is radio's oldest education program, heard today over more than 100 stations. Its goal is to help Western children gain an absorbing new interest in the world's good music, and — through music — a broader knowledge and understanding of the world around them.

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